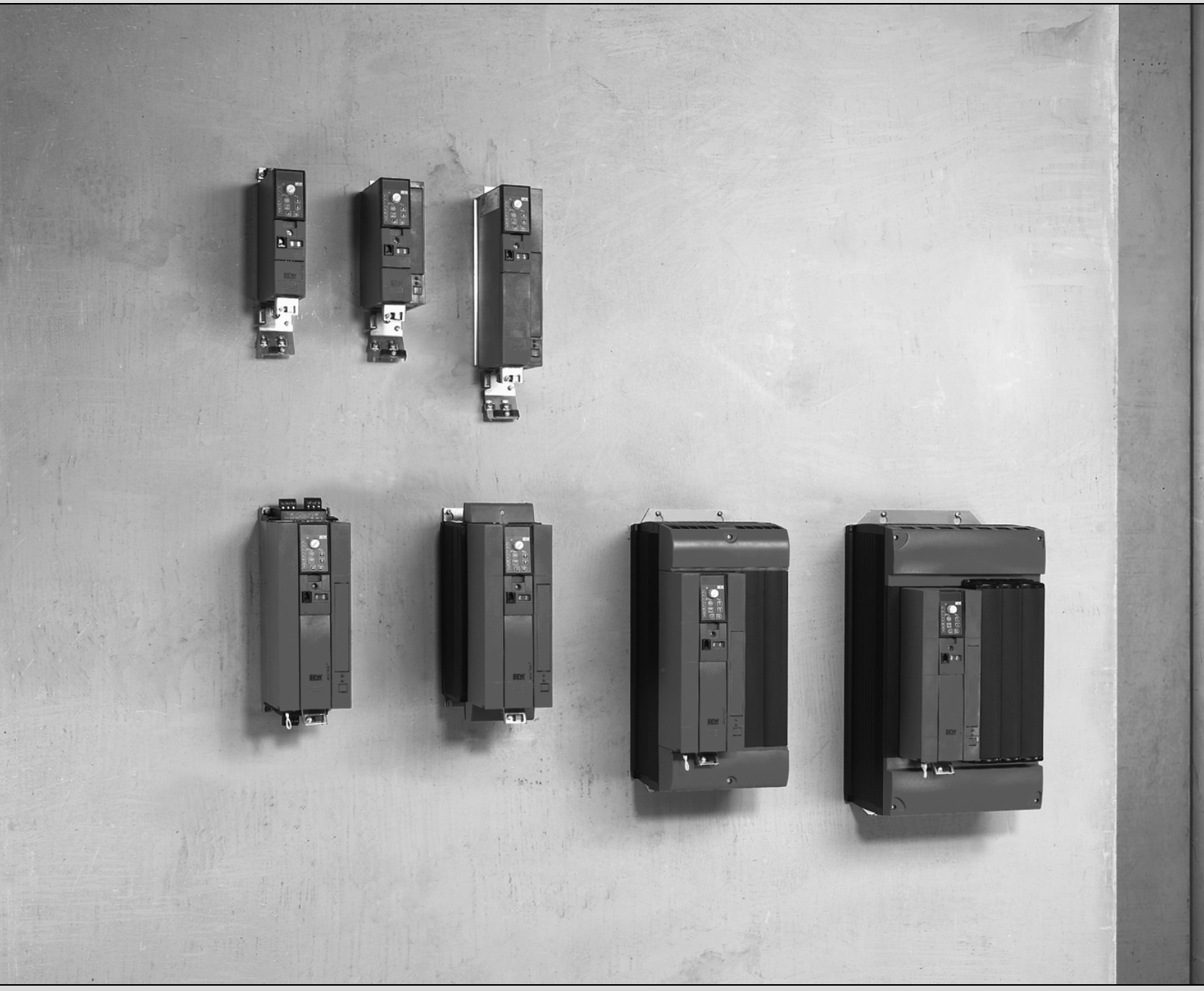
SEW EURODRIVE



MOVITRAC® B

Edition 02/2008

16602013 / EN

Operating Instructions

SEW EURODRIVE

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1 Important Notes

1.1 Structure of the safety notes

The safety notes in these operating instructions are structured as follows:

Symbol	SIGNAL WORD!
	Nature and source of hazard. Possible consequence(s) if disregarded. • Measure(s) to avoid the hazard.

Symbol	Signal word	Meaning	Consequences if disregarded
Example: General hazard	HAZARD!	Imminent hazard	Severe or fatal injuries
Electric shock	**WARNING!**	Possible hazardous situation	Severe or fatal injuries
	CAUTION!	Possible hazardous situation	Minor injuries
	STOP!	Possible damage to property	Damage to the drive system or its environment
	NOTE	Useful information or tip. Simplifies handling of the drive system.	

1.2 Rights to claim under warranty

Adhering to the operating instructions is a prerequisite for fault-free operation and the fulfillment of any right to claim under warranty. Read the operating instructions before you start working with the unit.

Make sure that the operating instructions are available to persons responsible for the system and its operation, as well as to persons who work independently on the unit.

1.3 Exclusion of liability

You must comply with the information contained in these operating instructions to ensure safe operation of frequency inverters and to achieve the specified product characteristics and performance requirements. SEW-EURODRIVE assumes no liability for injury to persons or damage to equipment or property resulting from non-observance of these operating instructions. In such cases, any liability for defects is excluded.

2 Safety Notes

The following basic safety notes are intended to prevent injury to persons and damage to property. The operator must ensure that the basic safety notes are read and observed. Make sure that persons responsible for the system and its operation, as well as persons who work independently on the unit, have read through the operating instructions carefully and understood them. If you are unclear about any of the information in this documentation, or if you require further information, please contact SEW-EURODRIVE.

2.1 General information

Never install or start up damaged products. Submit a complaint to the shipping company immediately in the event of damage.

During operation, drives with this type of enclosure may have live, uninsinuated, and sometimes moving or rotating parts as well as hot surfaces.

Removing covers without authorization, improper use as well as incorrect installation or operation may result in severe injuries to persons or damage to property.

Refer to the documentation for additional information.

2.2 Target group

Only a qualified electrician is authorized to transport, install, startup or service the units (observe IEC 60364 or CENELEC HD 384 or DIN VDE 0100 and IEC 60664 or DIN VDE 0110 as well as national accident prevention guidelines).

Qualified electricians in the context of these basic safety notes are persons familiar with installation, assembly, startup and operation of the product who possess the required qualifications.

Any activities regarding transportation, storage, operation, and disposal must be carried out by persons who have been instructed appropriately.

2.3 Designated use

Frequency inverters are components intended for installation in electrical systems or machines.

In case of installation in machines, startup of the drive inverters (meaning the start of proper use) is prohibited until it is determined that the machine meets the requirements stipulated in the EC Directive 98/37/EC (machine directive); observe EN 60204.

Startup (i.e. the start of designated use) is only permitted under observance of the EMC (2004/108/EC) directive.

The frequency inverters comply with the requirements of the Low Voltage Directive 2006/95/EC. The harmonized standards of the EN 61800-5-1/DIN VDE T105 series in connection with EN 60439-1/VDE 0660 part 500 and EN 60146/VDE 0558 are applied to these frequency inverters.

Technical data and information on the connection requirements are provided on the nameplate and in the documentation; these must be observed under all circumstances.

2.3.1 Safety functions

Frequency inverters from SEW-EURODRIVE may not perform any safety functions unless the inverters are subordinate to other safety systems. Use higher-level safety systems to ensure protection of equipment and personnel.

When using the "Safe stop" function, you must observe the following publications:

- MOVITRAC® B / Safe Disconnection – Conditions
- MOVITRAC® B / Safe Disconnection – Applications

2.4 Transportation, storage

You must observe the notes on transportation, storage and proper handling. Observe the climatic conditions as stated in the section "General technical data".

2.5 Installation

The units must be installed and cooled according to the regulations and specifications in the corresponding documentation.

Protect the frequency inverters from excessive strain. Ensure that components are not deformed and/or insulation spaces are maintained, particularly during transportation. Avoid contact with electronic components and contacts.

Frequency inverters contain components that can easily be damaged by electrostatic energy and improper handling. Prevent mechanical damage or destruction of electric components (may pose health risk).

The following applications are prohibited unless the unit is explicitly designed for such use:

- Use in potentially explosive areas
- Use in areas exposed to harmful oils, acids, gases, vapors, dust, radiation, etc.
- Use in non-stationary applications which are subject to mechanical vibration and impact loads in excess of the requirements in EN 61800-5-1.

2.6 Electrical connection

Observe the applicable national accident prevention guidelines when working on live frequency inverters (e.g. BGV A3).

Electrical installation is to be carried out in compliance with pertinent regulations (e.g. cable cross sections, fusing, protective conductor connection). Additional information is contained in the documentation.

You will find notes on EMC-compliant installation, such as shielding, grounding, the arrangement of filters and the routing of lines, in the documentation of the frequency inverters. Always observe these instructions, even for frequency inverters bearing the CE marking. The manufacturer of the system or machine is responsible for maintaining the limits established by EMC legislation.

Protective measures and protection devices must comply with the regulations in force (e.g. EN 60204 or EN 61800-5-1).

Required preventive measure: grounding the unit.

2.7 Safe disconnection

The unit meets all requirements for safe disconnection of power and electronic connections in accordance with EN 61800-5-1. All connected circuits must also satisfy the requirements for safe disconnection.

2.8 Operation

Systems with integrated frequency inverters must be equipped with additional monitoring and protection devices, as applicable, according to the relevant safety guidelines and regulations, such as legislation governing technical equipment, accident prevention regulations, etc. Changes to frequency inverters using the operating software are permitted.

Do not touch live components or power connections immediately after disconnecting the frequency inverters from the supply voltage because there may still be some charged capacitors. Note the respective labels on the frequency inverter.

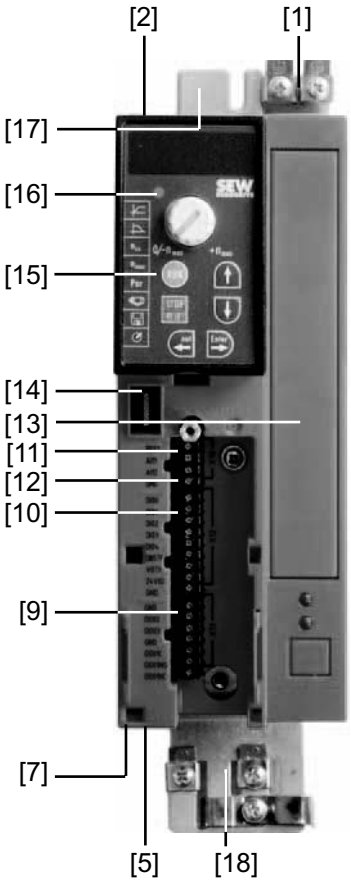
Keep all covers and doors closed during operation.

The fact that the status LED and other display elements are no longer illuminated does not indicate that the unit has been disconnected from the mains and no longer carries any voltage.

Mechanical blocking or safety functions inside the unit may result in the motor coming to a standstill. Eliminating the cause of the problem or performing a reset may result in the drive re-starting automatically. If, for safety reasons, this is not permitted for the driven machine, disconnect the unit from the mains before correcting the fault.

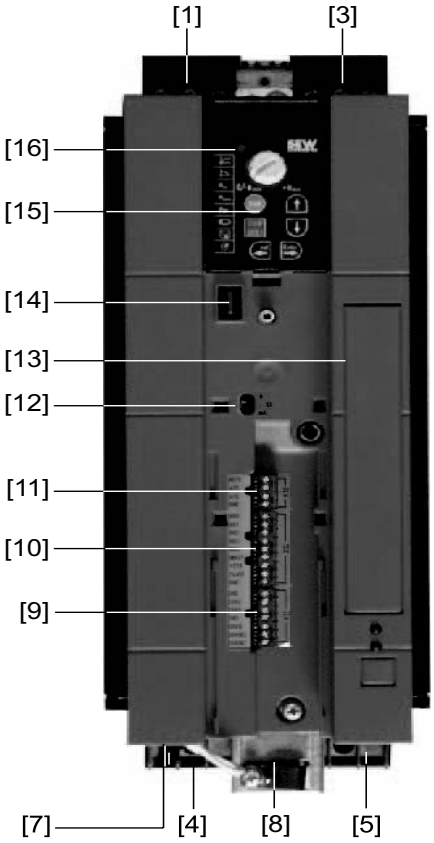
3 Unit Design

3.1 Size 0XS / 0S / 0L



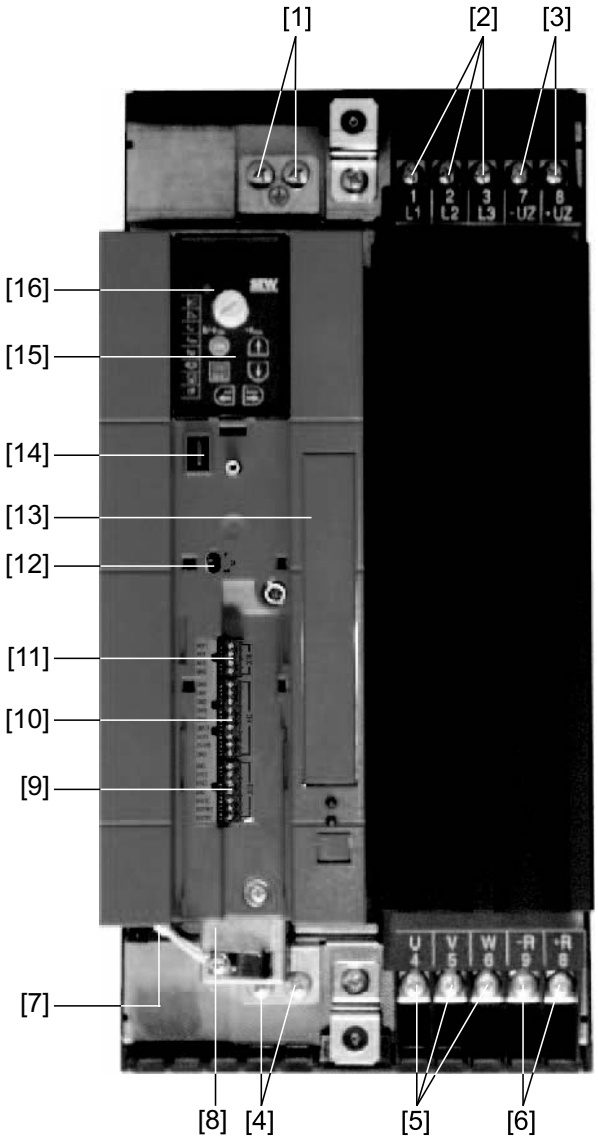
[1] PE connection
[2] X1: Power supply connection:
3-phase: L1 / L2 / L3
1-phase: L / N
[5] X2: Motor connection U / V / W / Brake connection +R / –R
[7] Shield clamp, fixing strap below
[8] X13: Binary outputs
[9] X12: Binary inputs
[10] X10: Analog input
[11] Switch S11 for V-mA toggle analog input
(in sizes 0XS and 0S behind removable connector)
[12] Option card slot (cannot be retrofitted / not for BG0XS)
[13] Connection for optional communication / analog module
[14] Optional keypad
[15] Status LED (visible without optional keypad)
[16] Fixing strap

3.2 Size 1 / 2S / 2



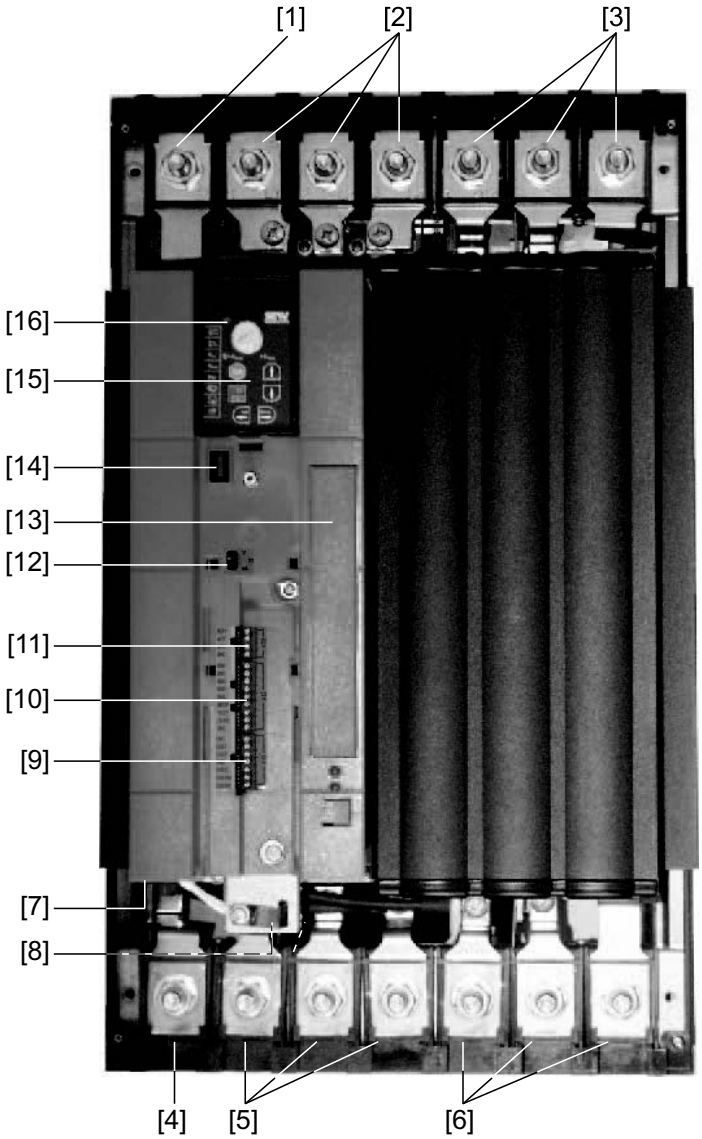
[1] X1: Power supply connection 3-phase: L1 / L2 / L3 / PE screw
[4] X2: Motor connection U / V / W / PE screw
[5] X3: Braking resistor connection R+ / R– / PE
[7] Space for power shield clamp
[8] X13: Binary outputs
[9] X12: Binary inputs
[10] X10: Analog input
[11] Switch S11 for V-mA toggle analog input
[12] Option card slot
[13] Connection for optional communication / analog module
[14] Optional keypad
[15] Status LED (visible without optional keypad)

3.3 Size 3



[1] X2: PE connection
[2] X1: Power supply connection 3-phase: 1/L1 / 2/L2 / 3/L3
[3] X4: DC link connection
[4] X2: PE connection
[5] X2: Motor connection U (4) / V (5) / W (6)
[6] X3: Braking resistor connection R+ (8) / R– (9) and PE connection
[8] X13: Binary outputs
[9] X12: Binary inputs
[10] X10: Analog input
[11] Switch S11 for V-mA toggle analog input
[12] Option card slot
[13] Connection for optional communication / analog module
[14] Optional keypad
[15] Status LED (visible without optional keypad)

3.4 Size 4 / 5

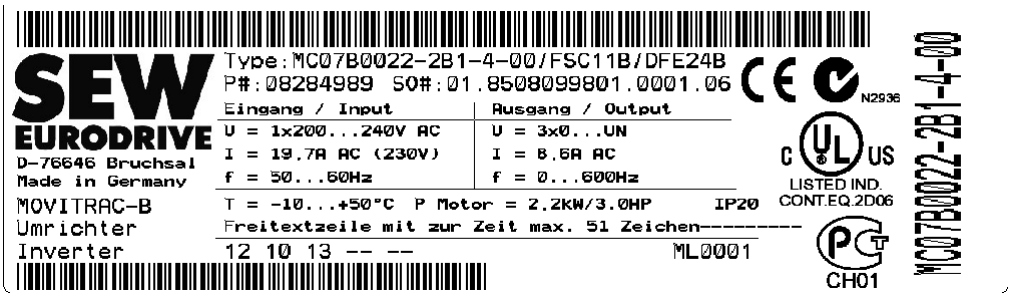


[1] X2: PE connection
[2] X1: Power supply connection 3-phase: 1/L1 / 2/L2 / 3/L3
[3] X4: DC link connection
[4] X2: PE connection
[5] X2: Motor connection U (4) / V (5) / W (6)
[6] X3: Braking resistor connection R+ (8) / R– (9) and PE connection
[8] X13: Binary outputs
[9] X12: Binary inputs
[10] X10: Analog input
[11] Switch S11 for V-mA toggle analog input
[12] Option card slot
[13] Connection for optional communication / analog module
[14] Optional keypad
[15] Status LED (visible without optional keypad)

3.5 Unit designation / nameplate

MC 07 B 0004- 2 B 1- 4- 00

Design	00 = Standard S0 = Safe stop
Quadrants	4 = 4Q (with brake chopper)
Connection type	3 = 3-phase / 1 = 1-phase
Radio interference suppression	0 = No radio interference suppression A = Radio interference suppression C2 B = Radio interference suppression C1
Connection voltage	2 = AC 200 ... 240 V 5 = AC 380 ... 500 V
Recommended motor power	0022 = 2.2 kW
Version B	
Series and generation	
MOVITRAC® type	



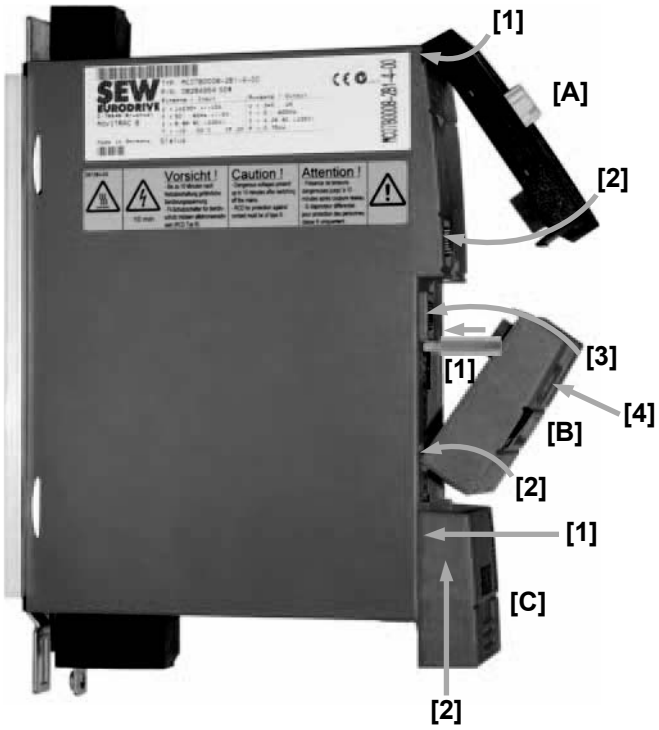
The unit status is indicated above the lower barcode.

4 Installation

4.1 Installation notes

	NOTE
	Comply with the safety notes during installation.

4.1.1 Mounting the front options



Observe the following sequence when mounting the front options:

- To mount the FBG11B [A] keypad, first insert it on top of the housing [1]. Next, press the socket on the keypad onto the connector of the unit [2].
- When using the FSC11B communication module or the FIO11B module [B], you have to mount the spacer bolt [1] first for size 0.

  Insert the FSC11B communication module or the FIO11B module [B] first at the bottom of the housing [2] before pressing the socket of the front option onto the connector of the unit [3].

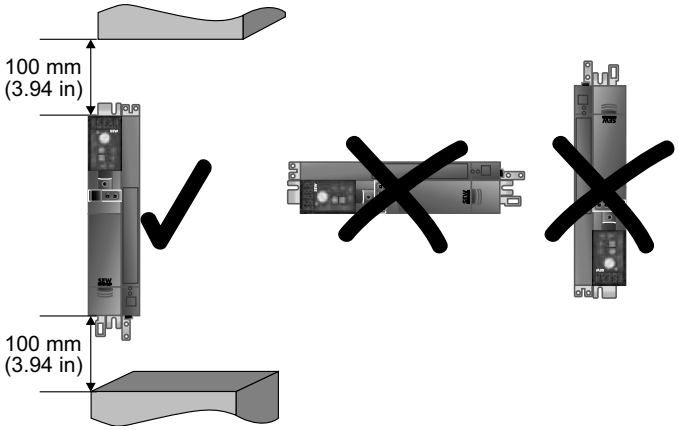
  Finally secure the front option using the screw on the unit [4].
- Before mounting the cover [C] at its final position, place it about 5 mm in front of the final position [1] and then slide it upwards [2].

4.1.2 Recommended tools

- Use a screwdriver with a 2.5 mm (0.098 in) wide blade for connecting the electronics terminal strip X10 / X12 / X13.

4.1.3 Minimum clearance and mounting position

- Leave **100 mm (3.94 in) clearance at the top and bottom** of the housing for optimum cooling. There is no need for clearance at the sides. You can line up the units directly next to one another. It is important that air circulation is not impeded by cables and other installation material. Prevent the heated exhaust air from other units from blowing onto this unit. **Install the units vertically only.** You must not install them horizontally, tilted or upside down.
- Proper heat dissipation of the rear side of the heat sink improves the thermal utilization of the unit.

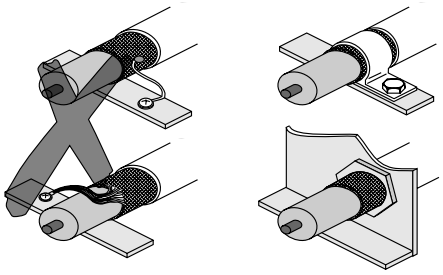


4.1.4 Separate cable ducts

- Route power leads and electronics leads in separate cable ducts.

4.1.5 EMC-compliant installation

- All cables except for the supply system lead must be **shielded**. For the motor cable, you can use the HD.. option (output choke) instead of the shielding to meet the interference emission limit values .
- When using shielded motor cables, e.g. prefabricated motor cables from SEW-EURODRIVE, you must keep the **unshielded conductors between the shield and connection terminal of the inverter as short as possible**.



- Apply the **shield by the shortest possible route and make sure it is grounded over a wide area at both ends**. If using double-shielded cables, ground the outer shield on the inverter end and the inner shield at the other end.
- You can also use **earthed sheet-metal ducts or metal pipes** to **shield the cables**. **Route** the **power and control cables separately**.
- Provide **high frequency compatible grounding** for the **inverter** and **all additional units** (wide area metal-on-metal contact between the unit housing and ground, e.g. unpainted control cabinet mounting panel).

4.1.6 IT systems

- SEW recommends using **earth-leakage monitors with a pulse code measuring process in voltage supply systems with a non-earthed star point (IT systems)**. Use of such devices prevents the earth-leakage monitor mis-tripping due to the earth capacitance of the inverter.
- For size 0, SEW recommends deactivating the interference suppressor filter using the enclosed insulation discs (see Deactivating EMC capacitors (size 0 only)).

4.1.7 Contactor

- Only use contactors in utilization category AC-3 (EN 60947-4-1).

4.1.8 Cross sections

- Supply system lead: **Cross section according to rated input current** I_{mains} at rated load.

  Motor lead: **Cross section according to rated output current** I_N

  Electronics cables: Maximum 1.5 mm^2 (AWG16) without conductor end sleeves[1)]

  Maximum 1.0 mm^2 (AWG17) with conductor end sleeves

1) Fine wired cables may not be installed without conductor end sleeves.

4.1.9 Cable lengths for individual drives

- The cable lengths depend on the PWM frequency. The permitted motor cable lengths are listed in the "Project Planning" section of the MOVITRAC® B system manual.

4.1.10 Unit output

- Only connect an **ohmic/inductive load (motor)**, do not connect a capacitive load!

4.1.11 Braking resistor connection

- Cut the lines to the required length.
- Use **2 tightly twisted leads or a 2-core shielded power cable**. Cross-section according to the rated output current of the inverter.
- Protect the braking resistor with a **bimetallic relay** with trip class 10 or 10A (wiring diagram). Set the **trip current** according to the **technical data of the braking resistor**.
- For **BW..-T braking resistors, you can connect the integrated thermostat using a 2-core, shielded cable** as an alternative to a bimetallic relay.
- **Flat-type braking resistors** have internal thermal overload protection (fuse which cannot be replaced). Install the **flat-type braking resistors** together with the appropriate **touch guard**.

4.1.12 Installing the braking resistor

- The supply cables to the braking resistors carry a high voltage (approx. DC 900 V) during rated operation.
- The surfaces of the braking resistors get very hot when the braking resistors are loaded with P_{rated}. Choose a suitable installation location. Braking resistors are usually mounted on the control cabinet roof.

4.1.13 Binary outputs

- The **binary outputs** are **short-circuit proof** and **protected against external voltage to 30 V**. Higher external voltages can destroy the binary outputs.

4.1.14 Interference emission

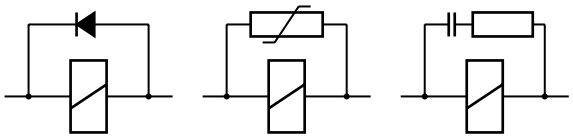
- Use shielded motor cables or HD output chokes for EMC compliant installation.

4.1.15 Switched inductances

	NOTE
	The minimum distance of switched inductances to the inverter must be at least 150 mm (5.91 in).

- Use suppressors to suppress interference on
  - contactors
  - relays
  - solenoid valves

  Suppressors are, for example, diodes, varistors, or RC elements:



Do not connect any suppressors directly on MOVITRAC® B. Connect suppressors as closely as possible to the inductance.

4.1.16 Line filters

MOVITRAC® B frequency inverters have an integrated line filter as standard. They comply with the following limit value class to EN 55011 on the line side without further measures:

- Single-phase connection: **C1** cable conducted
- Three-phase connection: **C2**

No EMC limits are specified for interference emission in voltage suply systems without an earthed star point (IT system). The efficiency of line filters is severely limited.

4.1.17 Line protection and earth-leakage circuit breaker

- Install the **fuses at the beginning of the mains cable** behind the supply bus junction (→ Basic unit wiring diagram).
- SEW-EURODRIVE recommends that you do not use earth-leakage circuit breakers. However, if an earth-leakage circuit breaker is stipulated for direct or indirect protection against contact, observe the **following note in accordance with EN 61800-5-1**:

	⚠ WARNING!
	Wrong type of earth-leakage circuit breaker installed. Severe or fatal injuries. MOVITRAC® can cause direct current in the protective earth. In cases where an earth-leakage circuit breaker is used for protection against direct or indirect contact, only install a type B earth-leakage circuit breaker on the **power supply end of the MOVITRAC® unit.**

4.1.18 PE mains connection (→ EN 61800-5-1)

Earth-leakage currents ≥ 3.5 mA may occur during normal operation. To meet the requirements of EN 61800-5-1 observe the following:

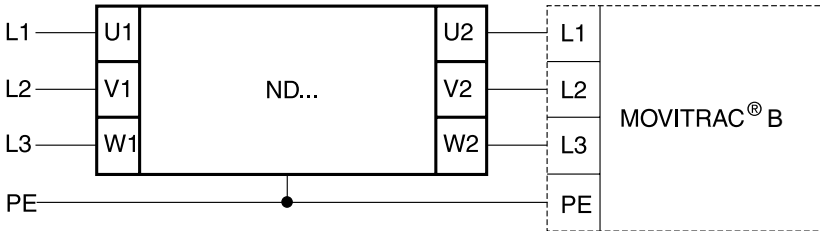
- Supply system lead < 10 mm^2 (AWG7):
  - Route a second PE conductor with the same cross section as the supply system lead in parallel to the protective earth via separate terminals, or
  - use a copper protective earth conductor with a cross section of 10 mm^2 (AWG7)
- Supply system lead 10 mm^2 ... 16 mm^2 (AWG7 ... AWG5):
  - Copper protective earth conductor with the cross section of the supply system lead.
- Supply system lead 16 mm^2 ... 35 mm^2 (AWG5 ... AWG2):
  - Copper protective earth conductor with a cross section of 16 mm^2 (AWG5)
- Supply system lead > 35 mm^2 (AWG2):
  - Copper protective earth conductor with half the cross section of the supply system lead.

4.2 Installing the optional power components

When **more than five 3-phase units** or **more than one 1-phase unit** are connected to a **supply system contactor** designed for the total current: Connect a **line choke** for limiting the inrush current.

4.2.1 ND line choke

ND ... series line choke connection



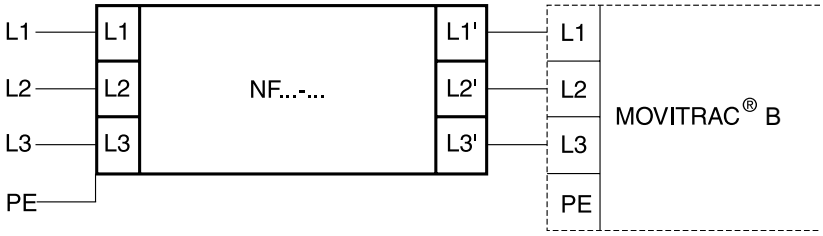
4.2.2 NF line filter

- The NF.. line filter can be used to maintain the limit value class C1/B for MOVITRAC® B units sizes 0 to 4.

STOP	**STOP!**
	Possible damage to property Switching is not allowed between line filter and MOVITRAC®. • Consequences if disregarded: Damage to the input level.

- Install the **line filter close to the inverter** but outside the minimum clearance for cooling.
- Restrict the **cable between the line filter and the inverter to the absolute minimum length required**, and never more than 400 mm (15.7 in). Unshielded, twisted cables are sufficient. Also use unshielded lines for the supply system lead.

Connecting NF...-... line filters



4.2.3 Foldable ferrites ULF11A

Place the supply system cable (L and N) in the foldable ferrite and press the foldable ferrites together until they snap in place.

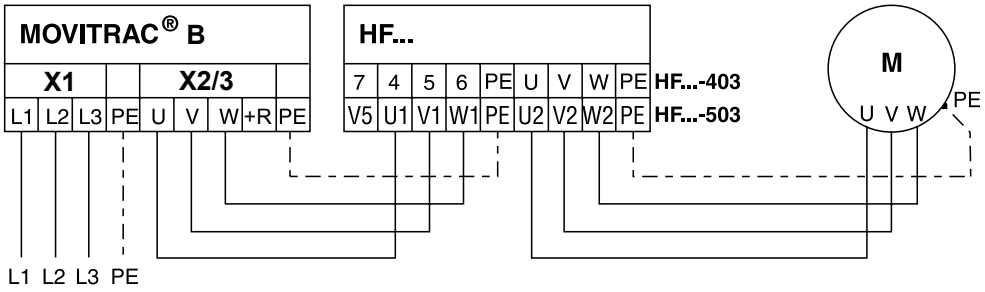
Compliance with EMC limit class C1 has been tested on a specified test setup. Compliance with class C1 for signal interference is achieved by the proper installation of the foldable ferrites ULF11A.

4.2.4 HF output filter

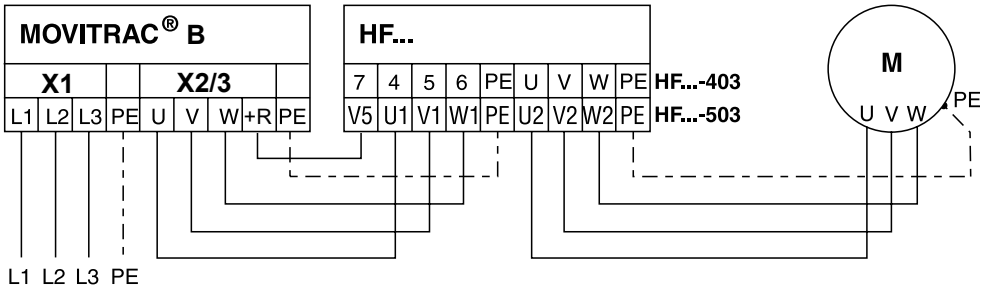
	NOTE
	• Install output filters next to the corresponding inverter. Leave a ventilation space of at least 100 mm (3.94 in) below and above the output filter. No clearance is required on the sides.

- Limit the connection cable between inverter and output filter to the absolutely necessary length. Maximum 1 m/3 ft with unshielded cable, 10 m/33 ft with shielded cable.
- Several motors can be connected to one output filter when operating a motor group from one inverter. The total value of the rated motor currents must not exceed the rated throughput current of the output filter.
- Two identical output filters can be connected in parallel to one inverter output to double the rated throughput current. To do this, connect all like connections to the output filters in parallel.
- Output filter connection V5 (with HF...-503) or 7 (with HF...-403) must not be connected when the inverter is operated with f_{PWM} = 4 or 8 kHz.
- No $V_{DC\ link}$ connection is permitted for unit sizes 0XS.

HF output filter connection without $V_{DC\ link}$ connection (PWM frequency only 4 or 8 kHz)

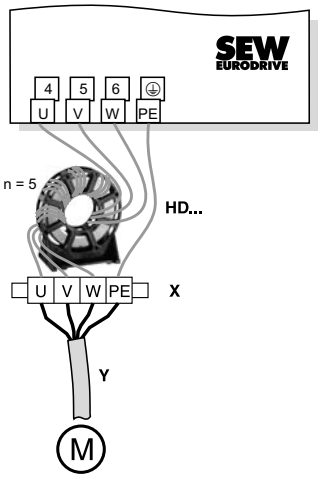


HF output filter connection without $V_{DC\ link}$ connection (PWM frequency only 12 or 16 kHz)



4.2.5 HD output choke

- Install the output choke close to MOVITRAC® B **outside the minimum clearance**.
- Always route all three phases (**not PE**) together through the output choke.
- If the cable is shielded, do **not** route the shield through the output choke.



When using the **HD** output choke, the cable must be wrapped around the choke **5 times**.

Only 5 loops are possible if the cable has a large diameter. To make up for this, 2 or 3 output chokes should be connected in series. SEW recommends connecting in series 2 output chokes in case of 4 windings and 3 output chokes in case of 3 windings.

- Installing HD012 output choke:

  Install output choke under the corresponding inverter. Leave a ventilation space of at least 100 mm (3.94 in) below and above the output choke. Provide a clearance of 10 mm (0.39 in) on each side.

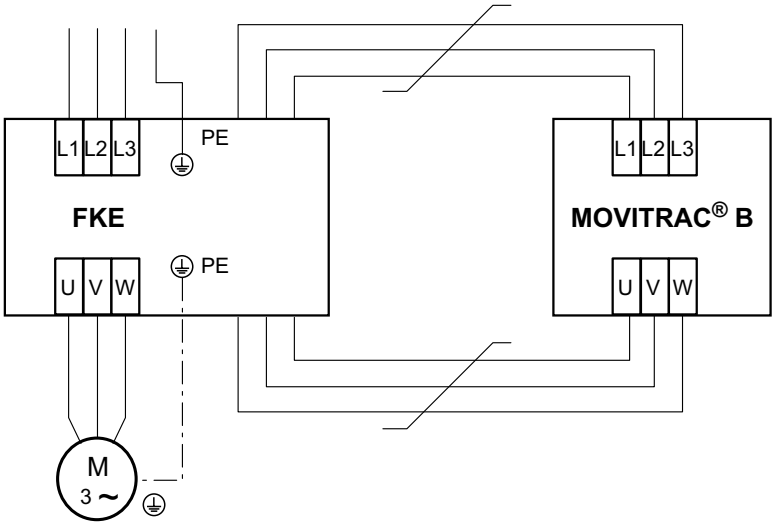
  Three alternative connection options are provided for connecting the protective earth. You can connect the PE line of the motor cable directly on the frequency inverter.

4.2.6 FKE12B / FKE13B EMC-modules

Use the supplied screws to mount the EMC module together with the MOVITRAC® B frequency inverter onto the conductive mounting surface in the control cabinet.

The connections U / V / W are labeled U / V / W and have to be connected accordingly.

The connections L1 / L2 / L3 (brown / orange / white) can be connected in any order.

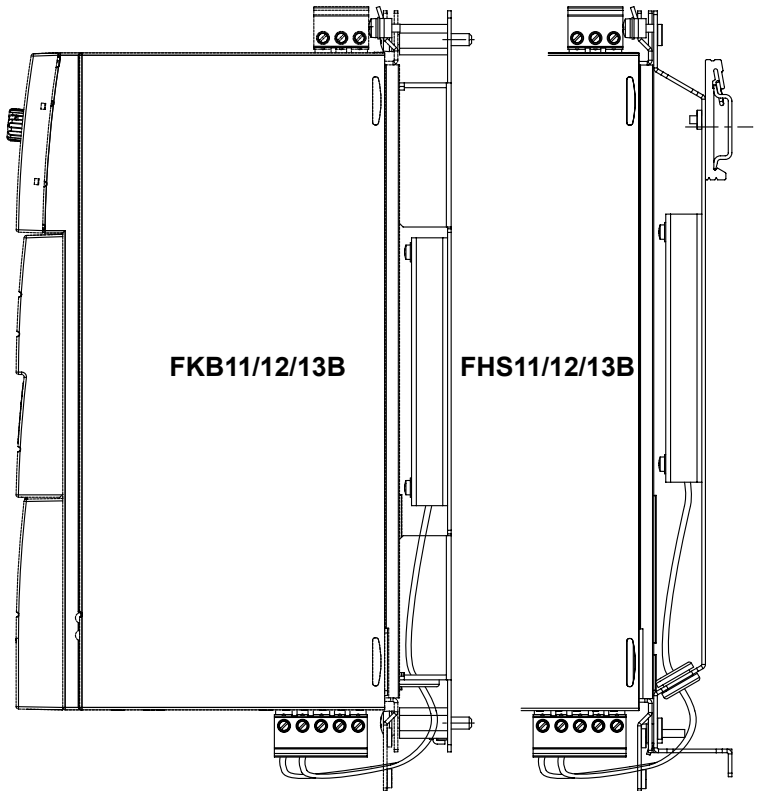


4.2.7 PTC braking resistors BW1 / BW3 with FKB10B

BW1 and BW3 PTC braking resistors can be mounted to the shield plate underneath the inverter using the angle bracket FDB10B, part number 18216218 available as option.

4.2.8 Flat-design resistors with FKB11/12/13B and FHS11/12/13B

Flat-design resistors can be mounted between inverter and control cabinet with FKB11/12/13B or FHS11/12/13B.



4.3 UL compliant installation

Please note the following points for UL compliant installation:

- Use only copper cables with the following temperature ranges as connection cables:
  - MOVITRAC® B 0003 ... 0300: temperature range 60/75 °C (140/167 °F)
  - MOVITRAC® B 0370 and 0450: temperature range 75 °C (167 °F)
- Necessary tightening torques of MOVITRAC® B power terminals: See installation notes.
- Operate the inverters on supply systems with a maximum phase-to-earth voltage of AC 300 V only.
- The inverter can only be operated on IT systems if the phase-to-earth voltage of AC 300 V cannot be exceeded either during operation or in case of an error.
- MOVITRAC® B frequency inverters are only allowed to be operated on supply systems which can supply maximum values in accordance with the following table. Only use melting fuses. The performance data of the fuses must not exceed the values in the following table.

4.3.1 Maximum values/fuses

The following maximum values/fuses must be observed for UL compliant installation:

230 V units / 1-phase	Max. supply current	Max. supply voltage	Fuses
0003 / 0004 / 0005 / 0008	AC 5000 A	AC 240 V	15 A / 250 V
0011 / 0015 / 0022	AC 5000 A	AC 240 V	30 A / 250 V

230 V units / 3-phase	Max. mains current	Max. mains voltage	Fuses
0003 / 0004 / 0005 / 0008	AC 5000 A	AC 240 V	15 A / 250 V
0011 / 0015 / 0022	AC 5000 A	AC 240 V	20 A / 250 V
0037	AC 5000 A	AC 240 V	30 A / 250 V
0055 / 0075	AC 5000 A	AC 240 V	110 A / 250 V
0110	AC 5000 A	AC 240 V	175 A / 250 V
0150	AC 5000 A	AC 240 V	225 A / 250 V
0220 / 0300	AC 10000 A	AC 240 V	350 A / 250 V

400/500 V units	Max. mains current	Max. mains voltage	Fuses
0003 / 0004 / 0005 / 0008 / 0011 / 0015	AC 5000 A	AC 500 V	15 A / 600 V
0022 / 0030 / 0040	AC 5000 A	AC 500 V	20 A / 600 V
0055 / 0075	AC 5000 A	AC 500 V	60 A / 600 V
0110	AC 5000 A	AC 500 V	110 A / 600 V
0150 / 0220	AC 5000 A	AC 500 V	175 A / 600 V
0300	AC 5000 A	AC 500 V	225 A / 600 V
0370 / 0450	AC 10000 A	AC 500 V	350 A / 600 V
0550 / 0750	AC 10000 A	AC 500 V	500 A / 600 V

NOTES

- Only use tested units with a **limited output voltage** (V_{max} = DC 30 V) and **limited output current** ($I \leq 8$ A) as an **external DC 24 V voltage source.**
- **UL certification does not apply to operation in voltage supply systems with a non-grounded star point (IT systems).**

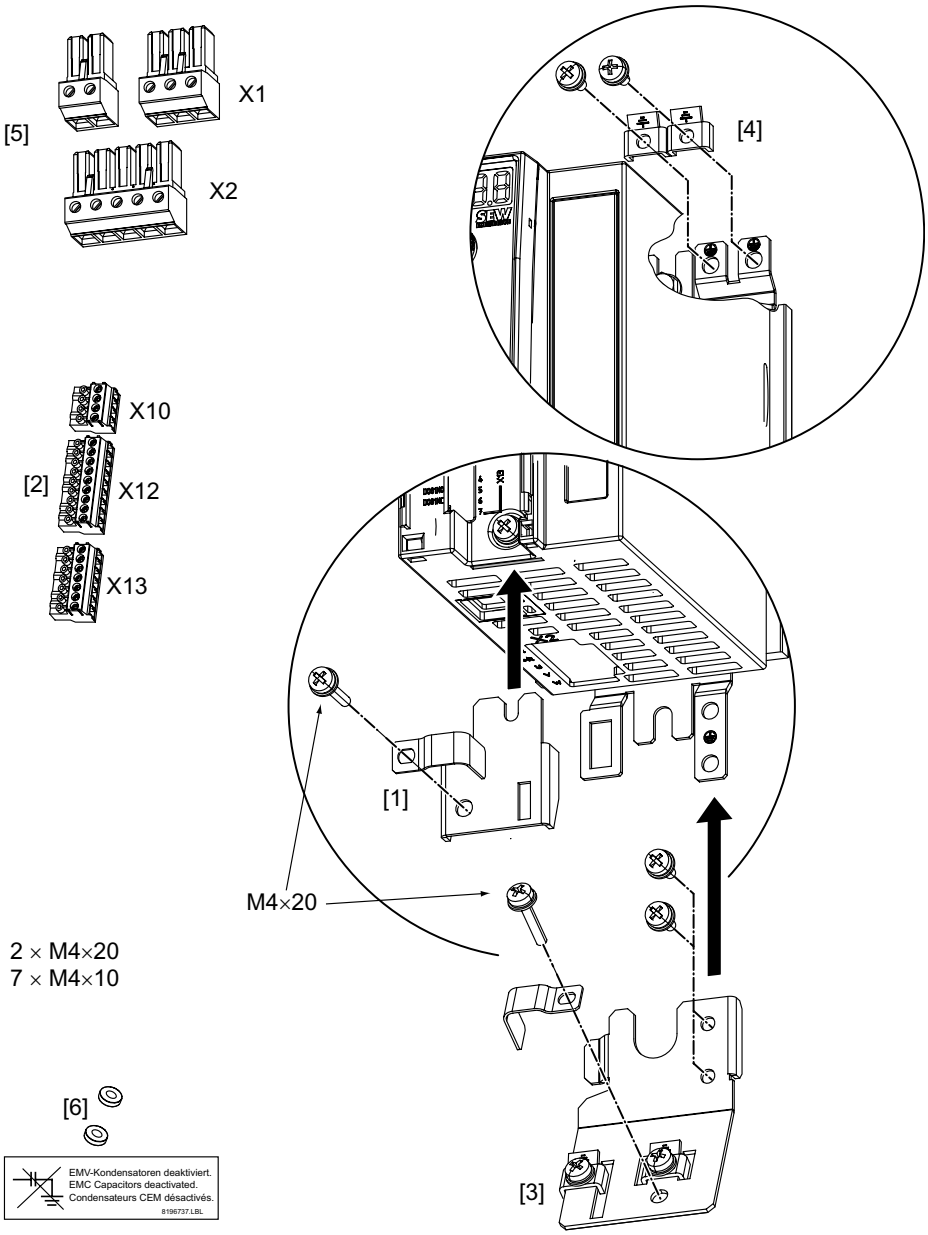
4.4 Scope of delivery and installation of loose items

4.4.1 Scope of delivery of loose items

The scope of delivery includes a bag for loose items. Its contents depends on the inverter size.

Scope of delivery of loose items for size					
0XS / 0S / 0L	**1**	**2S**	**2**	**3**	**4 / 5**
• Shield plate for control electronics with clamps and screws [1] • 3 connectors for electronics terminals [2]					
• Grounding terminals with screws [4]				–	–
• Shield plate for the power section with clamps and screws [3] • Connector for mains (2 or 3-pole) and motor [5] • Plastic insulations with stickers [6]	• Shield plate for the power section without screws	• Touch guard • Shield plate for the power section with screws		–	–
	• Fixing straps		–	–	• Touch guard

Loose items for size 0:



4.4.2 Installing shield plate for control electronics (all sizes)

MOVITRAC® B includes a shield plate for the control electronics with a retaining screw as standard. Install the shield plate for control electronics as follows:

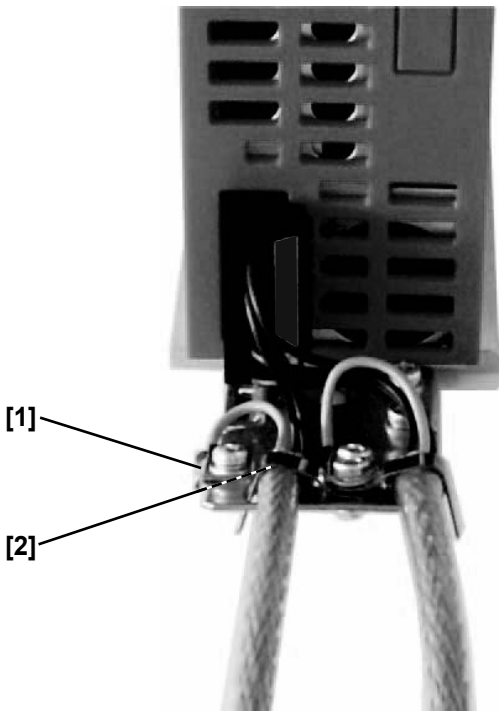
1. Loosen the screw first [1].
2. Push the shield clamp through the slot in the plastic housing.
3. Fasten the shield clamp.

4.4.3 Power shield clamp

Size 0

A power shield plate for the power section with 2 retaining screws is supplied as standard with MOVITRAC® size 0. Mount the shield plate for the power section using the two retaining screws.

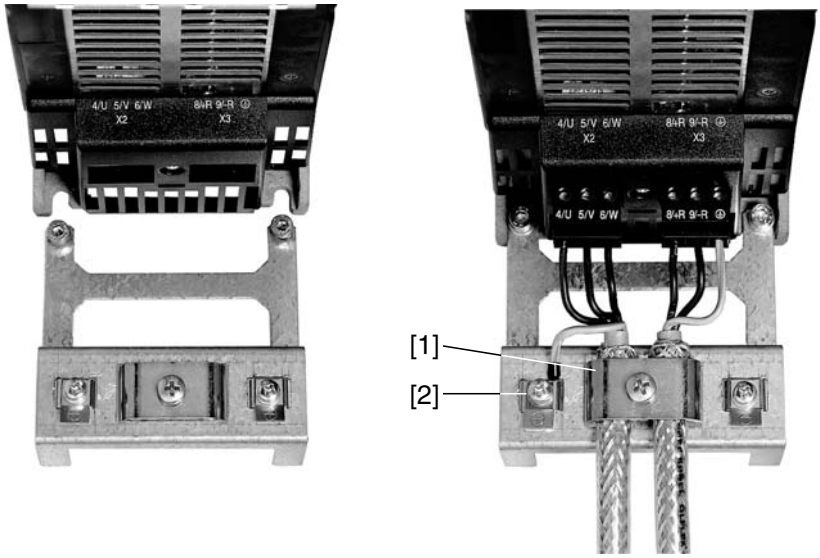
[1] PE connection



[2] Shield plate

Size 1

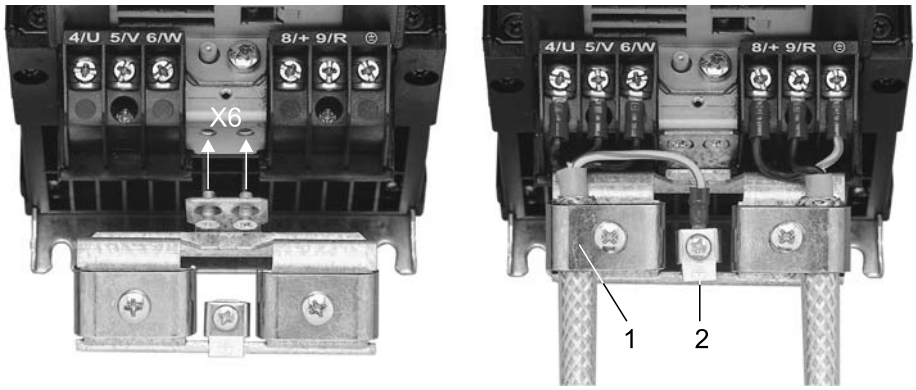
SEW-EURODRIVE supplies a shield plate for the power section as standard with MOVITRAC® B size 1. Mount the shield plate for the power section using the unit's two retaining screws.



[1] Shield clamp [2] PE connection

Sizes 2S / 2

SEW-EURODRIVE supplies a shield plate for the power section with two retaining screws as standard with MOVITRAC® B sizes 2S / 2. Mount the shield plate for the power section using the two retaining screws. The illustration shows size 2.



[1] Shield clamp [2] PE connection

The shield plate for the power section provides you with a very convenient way of installing the shield for the motor and brake cables. Apply the shield and PE conductor as shown in the illustrations.

Sizes 3 ... 5

With MOVITRAC® B sizes 3 ... 5, no shield plates are supplied for the power section. Use commercially available shield clamps for installing the shielding of motor and brake cables. Apply the shield as closely as possible to the inverter.

4.4.4 Installing the touch guard

HAZARD

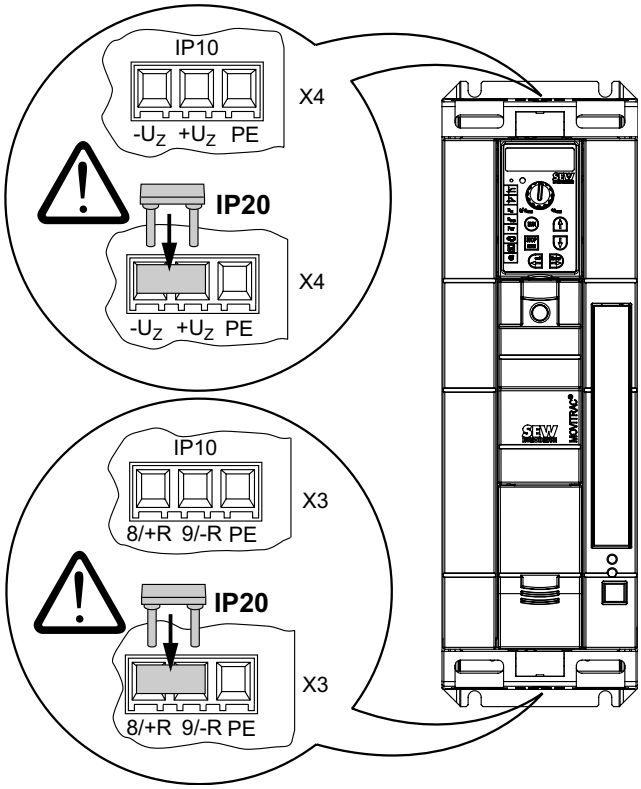
Uncovered power connections.

Severe or fatal injuries from electric shock.

- Install the touch guard according to the regulations.
- Never start the unit if the touch guard is not installed.

Size 2S

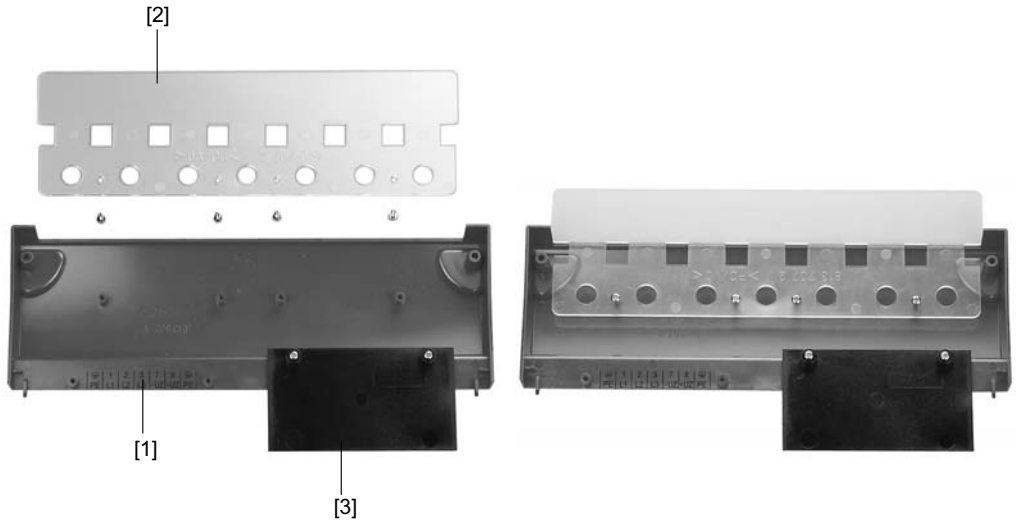
SEW-EURODRIVE supplies two touch guards for the DC link and braking resistor terminals as standard with MOVITRAC® B size 2S. Without touch guard, MOVITRAC® B size 2S has degree of protection IP10. When the touch guard is installed, the unit has degree of protection IP20.



Sizes 4 / 5

Two touch guards with 8 retaining screws are supplied as standard with MOVITRAC® sizes 4 / 5. Install the touch guard on both covers of the power section terminals.

Touch guard for MOVITRAC® B sizes 4 / 5:



The touch guard comprises the following parts:

[1] Cover
[2] Connection plate
[3] Screen (only for size 4)

The MOVITRAC® B unit sizes 4 / 5 can only achieve degree of protection IP10 when the following conditions are met:

- Touch guard is fully installed
- The shrink tubing is installed on all power terminals (X1, X2, X3, X4)

	NOTE
	If the above conditions are not met, MOVITRAC® units sizes 4 and 5 have degree of protection IP00.

4.5 Installing cold plate

The dissipation of the frequency inverter power loss can take place via coolers that work with different cooling media (air, water, oil, etc.). This can be useful, for example, in restricted installation spaces. When adhering to the usual installation notes (40 °C (104 °F) / 100 mm (3.94 in) space above and below), cold-plate technology is not necessary.

A good thermal connection to the cooler is important for safe operation of frequency inverters:

- The contact area between cooler and frequency inverter has to be the size of the frequency inverter cooling plate.
- Level contact surface, deviation max. up to 0.05 mm (0.0002 in).
- Connect cooler and cooling plate with all necessary screw connections.
- The mounting plate must not exceed 70 °C (158 °F) during operation. This must be ensured by the cooling medium.
- Cold plate installation is not possible with FHS or FKB.

4.6 Deactivating EMC capacitors (size 0 only)

Only electricians are allowed to convert the unit. Once converted, the unit must be marked with the sticker provided in the accessory bag.

⚠ HAZARD

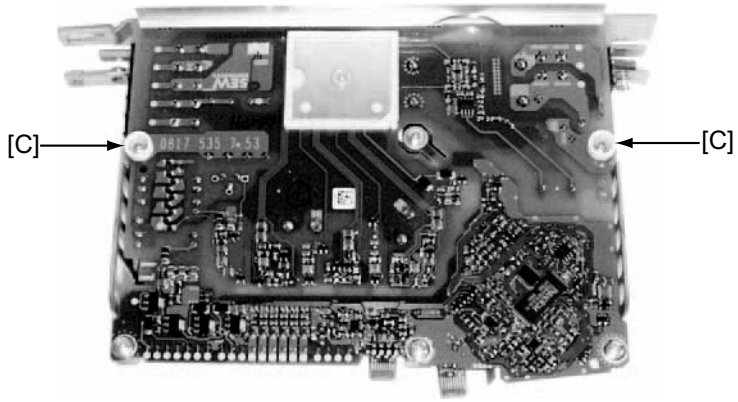
Severe or fatal injuries from electric shock.

- Disconnect the inverter from the power. Switch off the DC 24 V and the mains voltage.
- Wait 10 seconds.
- Ensure that the unit is de-energized.
- Take appropriate measures to avoid electrostatic charges (use discharge strap, conductive shoes, etc.) before removing the cover.
- Touch only the unit frame and heat sink. Do not touch any electronic components.

Proceed as follows to deactivate the EMC capacitors for MOVITRAC® B:

1. Open the unit:
   - Remove **all** connectors.
   - Remove the electronics shield clamp.
   - Remove the housing retaining screw in the center of the housing front.
   - Remove the housing.

2. Remove the two screws [A] securing the circuit board.
3. Install the screws in the plastic insulations provided [B].
4. Fasten screws to the unit [C].
5. Close the unit.
6. Attach the sticker provided to the unit.



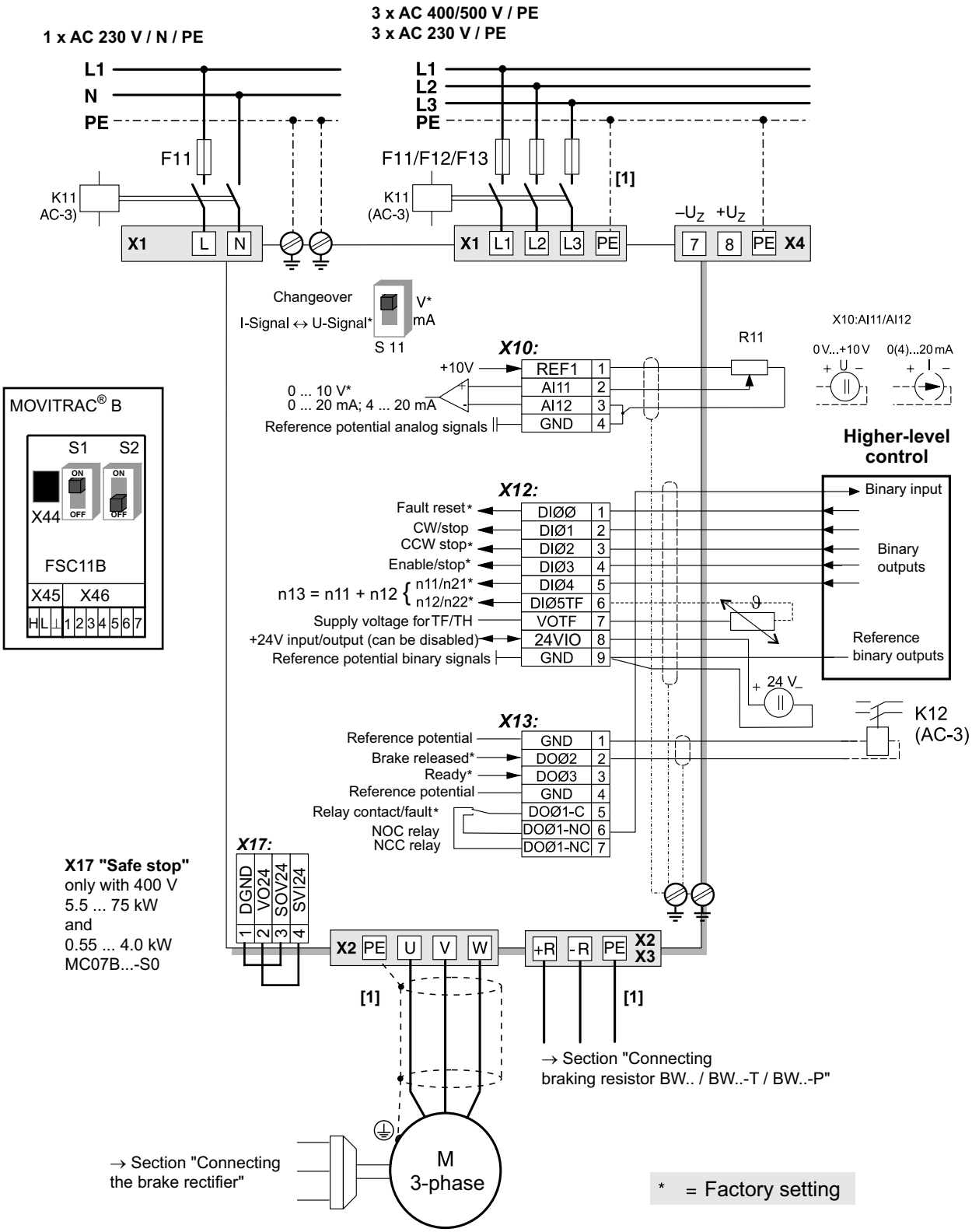
Deactivating the EMC capacitors stops earth-leakage currents from flowing over the EMC capacitors.

- Please ensure that the earth-leakage currents are essentially only determined by the level of the DC link voltage, the PWM frequency, the applied motor cable and its length and the motor used.

When the suppression capacitors are deactivated, the EMC filter is no longer active.

	NOTE
	IT systems • No EMC limits are specified for interference emission in voltage supply systems without a grounded star point (IT systems).

4.7 Wiring diagram



[1] In sizes 1, 2S, and 2, there is no PE connection next to the power supply connection terminals and motor connection terminals [X1]/[X2]. In this case, use the PE terminal next to the DC link connection [X4].

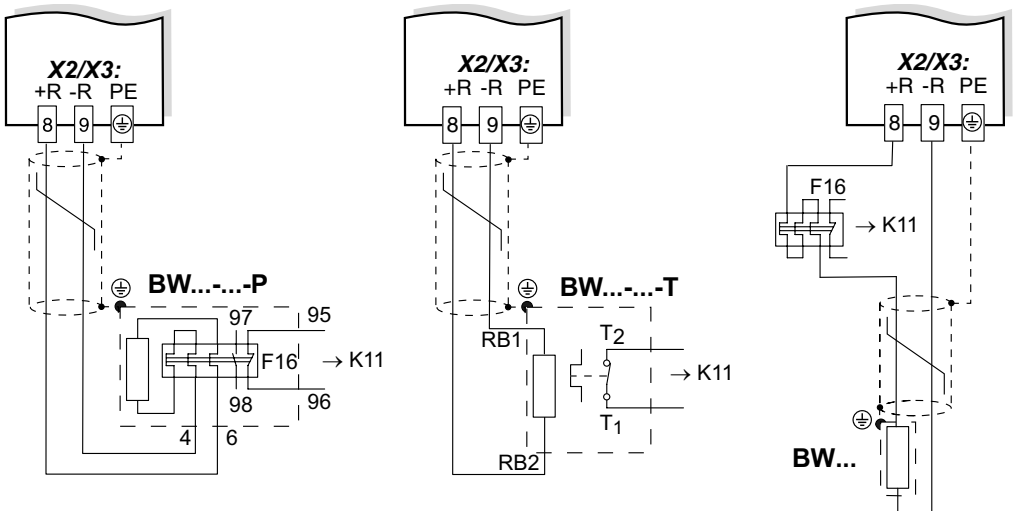
From size 3 onwards, there are two additional PE terminals.

4.8 TF thermistor and TH bimetallic switch

The winding temperature is monitored using TF thermistors or TH bimetallic switches. The connection is made at the TF output VOTF and the TF input DI05TF of MOVITRAC®. The binary input DI05TF must be set to TF message. The temperature will then be monitored by MOVITRAC®; no additional monitoring unit is required.

A connection can also be made to 24VIO and a binary output when using TH bimetallic switches. Set the binary input to /External fault.

4.9 Connecting braking resistors BW.. / BW..-T / BW..-P to X3 / X2



A terminal must be set to "/Controller inhibit". K11 must be opened and "/Controller inhibit" must receive a "0" signal in the following cases:

- BW...-...-P: The auxiliary contact trips
- BW...-...-T: The internal temperature switch trips
- BW...: The external bimetallic relay F16 trips

The resistor circuit must not be interrupted.

Overload protection for braking resistors BW:

Braking resistor type	Overload protection		
	Design specified	Internal temperature switch (..T)	External bimetallic relay (F16)
BW...	–	–	Required
BW...-...-T[1)]	–	One of the two options (internal temperature switch / external bimetallic relay) is required.	
BW...-003 / BW...-005	Adequate	–	Permitted

1) Permitted mounting options: On horizontal or vertical surfaces with brackets at the bottom and perforated sheets at top and bottom. **Mounting not permitted:** On vertical surfaces with brackets at the top, right or left.

4.10 Connecting the brake rectifier

	NOTE
	The connection of the brake rectifier requires a separate supply system cable; supply from the motor voltage is not permitted!

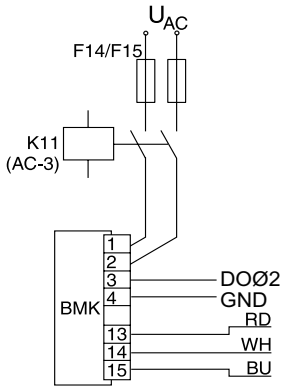
Use contactors of utilization category AC-3 for K11 and K12 only.

Always switch off the brake on the DC and AC sides in:

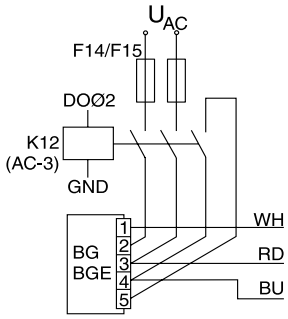
- All hoist applications.
- Drives which require a rapid brake response time.

If the brake rectifier is installed in the control cabinet, route the connecting leads between the brake rectifier and the brake separately from other power cables. Routing together with other cables is only permitted if the other cables are shielded.

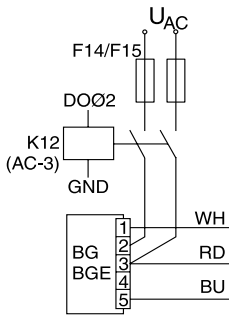
Wiring diagrams



Cut-off in the
AC and DC circuits



Cut-off in the
AC and DC circuits

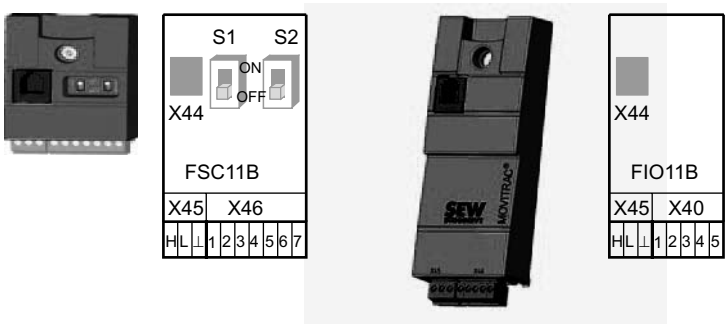


Cut-off in the
AC circuit

Note the corresponding connection regulations for brakes without BG/BGE or BME. Refer to the SEW publication "Drive Engineering - Practical Implementation: SEW disk brakes" for detailed information about this topic .

4.11 Installing FSC11B / FIO11B

You can enhance the basic units with the FSC11B and FIO11B modules.



Connection/unit	FIO11B	FSC11B
RS-485 service interface X44	Yes	Yes
RS-485 terminal connection X45	Yes	Yes
SBus connection X46	No	Yes
Analog input/output X40	Yes	No

4.11.1 Mounting and installation on FSC11B/FIO11B

Always attach the option to the unit with the screw that is included. For size 0, mount the spacer bolt first. The bolt is already mounted in sizes 1 and greater. Fitting the screw secures the high-frequency EMC connection between the basic unit and the option.

Function	Terminal	Description	Data	FSC11B	FIO11B
Service interface	X44	Via RJ10 plug connector	Only for service purposes Maximum cable length 3 m (10 ft)	Yes	Yes
RS-485 interface	X45:H	ST11: RS-485+		Yes	Yes
	X45:L	ST12: RS-485–			
	X45:⊥	GND: Reference potential			
System bus	X46:1	SC11: SBus high	CAN bus to CAN specification 2.0, parts A and B Max. 64 stations Terminating resistor 120 Ω can be activated via DIP switch	Yes	No
	X46:2	SC12: SBus low			
	X46:3	GND: Reference potential			
	X46:4	SC21: SBus high			
	X46:5	SC22: SBus low			
	X46:6	GND: Reference potential			
DC 24 V	X46:7	24VIO: Auxiliary voltage / external voltage supply		Yes	No
Analog input	X40:1	AI2: Voltage input	–10 ... +10 V R_i > 40 kΩ Resolution 10 bit Sampling time 5 ms	No	Yes
	X40:2	GND: Reference potential			

Function	Terminal	Description	Data	FSC11B	FIO11B
Analog output	X40:3	GND: Reference potential	0 ... +10 V I_{max} = 2 mA 0 (4) ... 20 mA Resolution 10 bit Sampling time 5 ms Short-circuit proof, protected against external voltage up to 30 V	No	Yes
	X40:4	AOV1: Voltage output			
	X40:5	AOI1: Current output			

The DC 24 V function of X46:7 is identical to X12:8 of the basic unit. All GND terminals of the unit are connected to each other and to PE.

Cable specification

- Use a 4-core twisted and shielded copper cable (data transmission cable with braided copper shield). The cable must meet the following specifications:
  - Core cross section 0.25 ... 0.75 mm^2 (AWG 23 ... AWG 18)
  - Line resistance 120 Ω at 1 MHz
  - Capacitance per unit length ≤ 40 pF/m at 1 kHz

  Suitable cables include CAN bus or DeviceNet cables.

Connecting shield

- Connect the shield to the electronics shield clamp on the inverter or master controller and make sure it is connected over a wide area at both ends.
- There is no need for a ground connections between MOVITRAC® B and gateways, or MOVITRAC® B and MOVITRAC® B with shielded cables. A 2-core cable is permitted in this case.
- When connecting MOVIDRIVE® B and MOVITRAC® B always make sure that the electrical isolation between the reference potential DGND and ground is neutralized in MOVIDRIVE® B.

STOP!

Potential displacement

Possible consequences include malfunctions that could lead to irreparable damage to the unit.

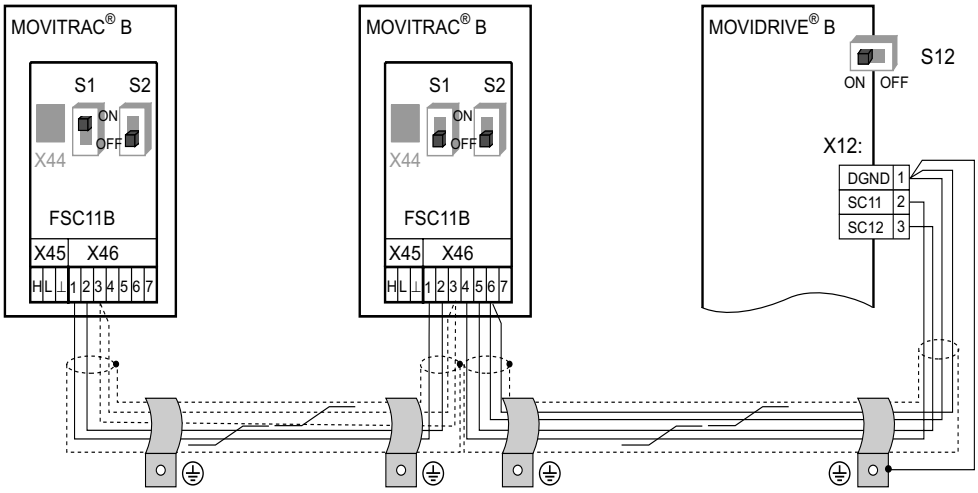
- There must not be any potential displacement between the connected units. Take appropriate measures to avoid potential displacement, such as connecting the unit ground connectors using a separate cable.

4.11.2 Installing system bus (SBus) to FSC11B

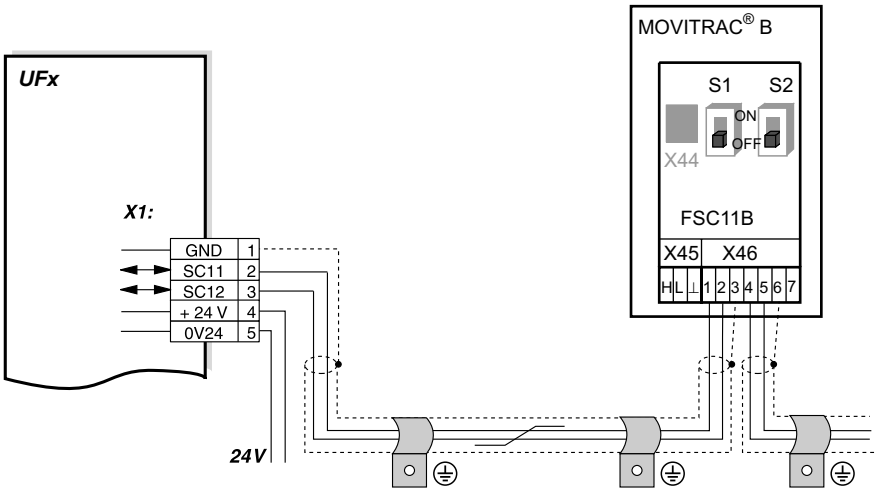
Max. 64 CAN bus stations can be addressed using the system bus (SBus). The SBus supports transmission technology compliant with ISO 11898.

S1	S2	SC11/SC12	SC21/SC22
off	off	CAN1	CAN1
on	off	CAN1 concluded	–
X	On	Reserved	

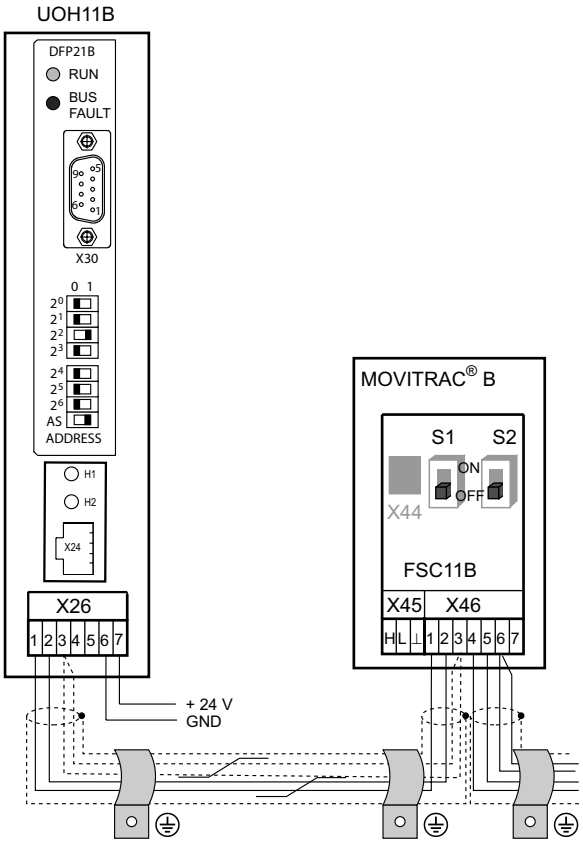
MOVITRAC® B system bus connection



System bus connection MOVITRAC®B with UFx



System bus connection MOVITRAC® B with DFx/UOH11B gateways or DFx integrated in MOVITRAC® B



Line length

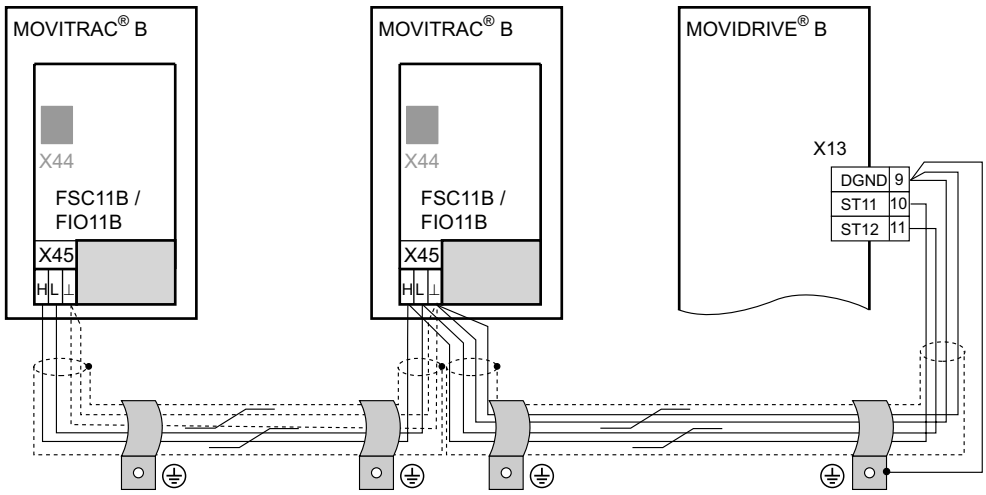
- The permitted total cable length depends on the baud rate setting of the SBus (P884):
  - 125 kBaud:320 m (1050 ft)
  - 250 kBaud: 160 m (525 ft)
  - **500 kBaud: 80 m (260 ft)**
  - 1000 kBaud: 40 m (130 ft)
- You must use shielded cables.

	NOTE
	Terminating resistor: Switch on the system bus terminating resistor (S1 = ON) at the start and end of the system bus connection. Switch off the terminating resistor on the units in between (S1 = OFF). Certain units have a permanently integrated terminating resistor that cannot be switched off. This is the case for UFx and DFx/UOH. These gateways form the end of the physical line. **Do not connect any external terminating resistors.**

4.11.3 Installing RS-485 interface to FSC11B

The RS-485 interface can be used for connecting max. 32 MOVITRAC® units or 31 MOVITRAC® units and a higher-level controller (PLC).

MOVITRAC® B RS-485 connection

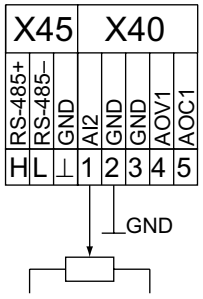
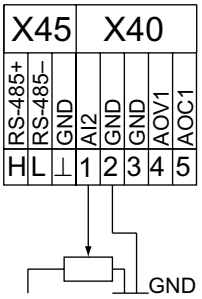
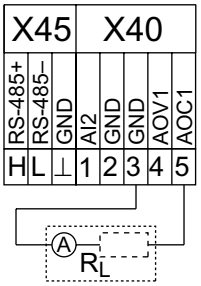
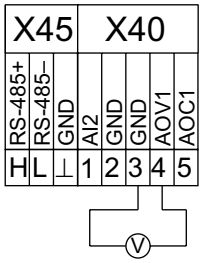


Cable length

- The permitted total cable length is 200 m.
- You must use shielded cables.

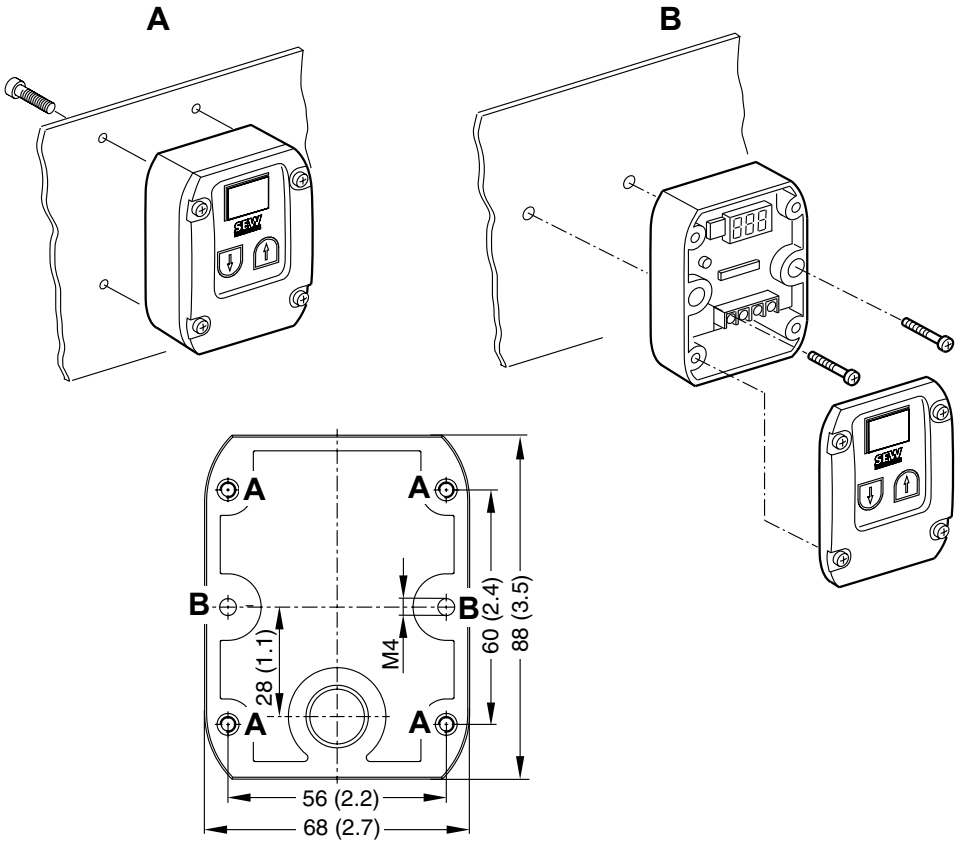
	NOTE
	Terminating resistor: Dynamic terminating resistors are installed. **Do not connect any external terminating resistors.**

4.11.4 Wiring analog module FIO11B

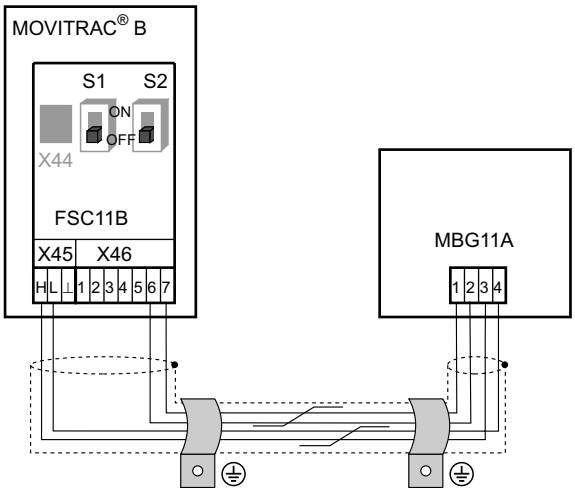
Bipolar analog input AI2	Unipolar analog input AI2	Current analog output AOC1	Voltage analog output AOV1
			

4.12 Installing MBG11A speed control module

- Mounting A from the rear using 4 tapped holes.
- Mounting B from the front using 2 retaining holes



4.12.1 Connection



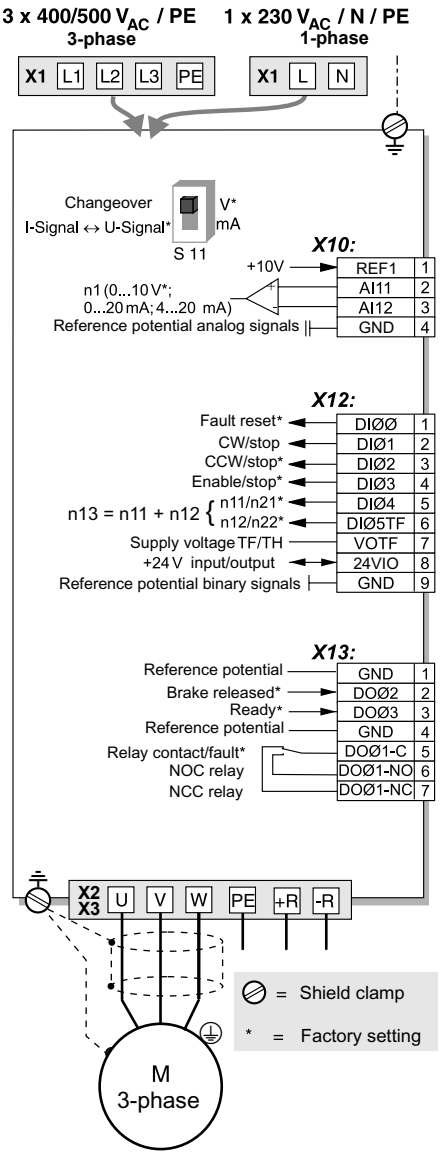
5 Startup

5.1 Brief description of the startup process

The MOVITRAC® B frequency inverter can be connected directly to a motor of the same power. For example: A 1.5 kW (2.0 HP) motor can be connected directly to a MC07B0015.

5.1.1 Procedure

1. Connect the motor to MOVITRAC® B (terminal X2).
2. You have the option of connecting a braking resistor (terminal X2/X3).
3. The following signal terminals must be controlled with your control system:
   - Enable DI∅3
   - As required CW/Stop DI∅1 or CCW/ Stop DI∅2
   - Setpoint:
     - Analog input X10 and/or
     - DI∅4 = n11 = 150 rpm or/and
     - DI∅5 = n12 = 750 rpm or/and
     - DI∅4 + DI∅5 = n13 = 1500 rpm
   - For brakemotors: DO∅2 = Brake control systems using brake rectifiers
4. You have the option of connecting the following signal terminals:
   - DI∅∅ = Fault reset
   - DO∅1 = /Fault (designed as relay contact)
   - DO∅3 = Ready
5. Check the controller for the required functionality.
6. Connect the frequency inverter to the mains (X1).

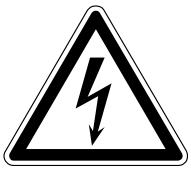


5.1.2 Notes

Signal terminal functions and setpoint settings can be modified using the FBG11B keypad or a PC. A PC connection requires the FSC11B front option or one of the following interface adapters: UWS21B / UWS11A / USB11A.

	NOTE
	The MOVITRAC® B frequency inverter must only be operated in strict observance of the detailed operating instructions.

5.2 General startup instructions



HAZARD

Uncovered power connections.

Severe or fatal injuries from electric shock.

- Install the touch guard according to the regulations.
- Never start the unit if the touch guard is not installed.

5.2.1 Prerequisite

The drive must be configured correctly to ensure that startup is successful.

MOVITRAC® B frequency inverters are factory set to be taken into operation with the SEW motor adapted to the correct power level (4-pole, 50 Hz) in V/f control mode.

5.2.2 Hoist applications

HAZARD

Risk of fatal injury if the hoist falls.

Severe or fatal injuries.

MOVITRAC® B may not be used as a safety device in hoist applications.

- Use monitoring systems or mechanical protection devices to ensure safety.

5.3 Preliminary work and resources

- Check the installation.

HAZARD

Risk of crushing if the motor starts up unintentionally.

Severe or fatal injuries.

- Ensure that the motor cannot start inadvertently, for example, by removing the electronics terminal block X13.
- Additional safety precautions must be taken depending on the application to avoid injury to people and damage to machinery, such as monitoring systems or mechanical protection devices.

5.3.1 Preliminary work and resources on the MOVITRAC® B basic unit

- Connect the supply system and the motor.
- Connect the signal terminals.
- Switch on the power supply system.

5.3.2 Preliminary work and resources on MOVITRAC® B with keypad

- Connect the supply system and the motor. **Do not connect signal terminals!**
- Switch on the power supply system.
- The display shows Stop.
- Program the signal terminals.
- Set the parameters correctly (e.g. ramps).
- Check the set terminal assignment (P601 ... P622).
- Switch off the power supply system.
- Connect the signal terminals.
- Switch on the power supply system.

NOTE

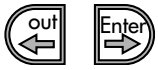
The inverter automatically changes parameter values once you perform a startup.

5.4 Optional keypad FBG11B

Key arrangement and symbols on keypad:

5.4.1 Keypad functions

The UP/DOWN and ENTER/OUT buttons are used for navigating through the menus. Use the RUN and STOP/RESET buttons to control the drive. The setpoint control module is used for setpoint specification.

	Use UP/DOWN to select symbols and change values.
	ENTER/OUT to activate and deactivate the symbols or parameter menus
	Press "RUN" to start the drive.
	"STOP/RESET" is used for resetting errors and for stopping the drive.

The STOP/RESET button has priority over a terminal enable or an enable via the interface. If you stop a drive using the STOP/RESET key, you have to enable it again by pressing the RUN key.

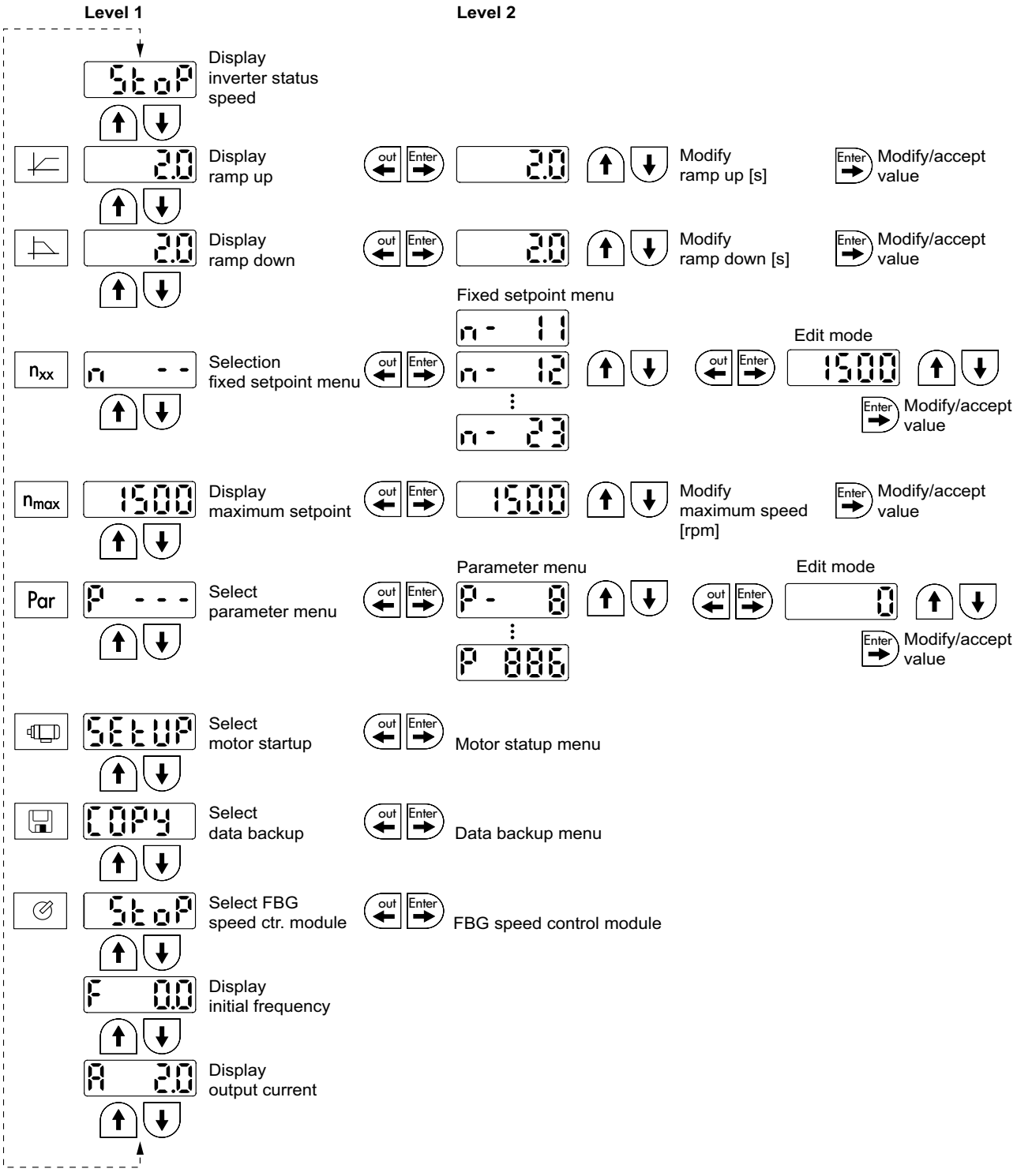
	NOTE
	After switching off the power supply, press the STOP key to lift the lock.

The STOP/RESET key can be used for performing a reset after a fault has occurred with a programmed error response. The drive is then inhibited and must be enabled using the RUN key. You can deactivate the STOP function with parameter 760 using FBG11B.

If you stop the drive with the STOP/RESET key, the display Stop is flashing. This signal indicates you have to enable the drive using the "RUN" key.

After copying the parameter set in MOVITRAC® B, the unit is also stopped.

5.5 Basic operation of the FBG11B keypad



5.5.1 Menu system

The LED integrated in the symbol lights up when you select a symbol. If a symbol only represents display values, the current display value appears immediately on the display.

5.5.2 Changing parameters

You can select the required parameter by selecting a symbol and pressing the ENTER key.

Press the ENTER button again to edit the parameter value. You can alter the value when the LED in the corresponding symbol flashes. When pressing the ENTER key again, the value becomes active and the LED does not flash any longer.

5.5.3 Status display

If the status is "Drive enabled", the display will show the calculated actual speed.

5.5.4 Fault display

In the event of an error or fault, the display changes and flashes the fault code, for example F-11 (refer to the fault list in the "Operation and Service" section). This situation will not occur during active startup.

5.5.5 Warnings

You may not alter any parameter in any operating mode. If you try to do so, the display r-19 ... r-32 will appear. The display shows a code depending on the action, e.g. r-28 (controller inhibit required). You find a list of warnings in the Operation and Service section.

5.5.6 Parameter menu change short ↔ long

Using parameter P800, you can switch back and forth between short menu and long menu. It is indicated in the parameter description and parameter list which parameters are accessible via short and long menu.

5.6 Manual operation with FBG11B speed control module

FBG11B speed control module of the keypad (local manual operation): LED flashes

The only relevant parameters in "FBG speed control module" operating mode are:

- *P122 Direction of rotation FBG manual operation*
- "RUN" and "STOP/RESET" buttons
- Speed control module

When the FBG speed control module is activated, the symbol flashes.

You limit the smallest speed with *P301 Minimum speed* and the largest speed with the n_{max} symbol.

After a fault, a reset can be performed using the "STOP/RESET" button via the terminal or the interface. After a reset, the "manual speed control module" operating mode will be active once again. The drive remains stopped.

The Stop display flashes to indicate that you have to re-enable the drive by pressing "RUN."

The *P760 Locking RUN/STOP keys* parameter does not have any effect in "manual speed control module" operating mode.

Removing the FBG11B keypad will trigger a stop response.

5.7 External setpoint selection

External setpoint selection

Control via

– Terminals

– Serial interface

– Setpoint potentiometer connected to AI11/AI12

5.7.1 Set direction of rotation

You can specify the set direction of rotation:

- "CW/Stop and "CCW/Stop" in *P101 control signal source = terminals* or *P101 control signal source = 3 wire-control*
- The polarity of the setpoint in the process data word in *P101 Control signal source = RS485 or SBus* **and** *P100 Setpoint source = RS485 or SBus*

5.7.2 Setpoint speed

You can specify the set speed:

- Speed control module if *P121 Addition FBG speed control module* is set to ON
- *P100 Setpoint source*
  - Fixed setpoints
  - Fixed setpoints with analog input
  - Process data word from SBus or RS-485
  - Motor potentiometer

5.7.3 Direction of rotation enable with RS-485 or SBus

Unipolar setpoint sources:

Unipolar/fixed setpoint
Motor potentiometer/fixed setpoint
Fixed setpoint + AI1
Fixed setpoint* + AI1
Frequency setpoint input/fixed setpoint

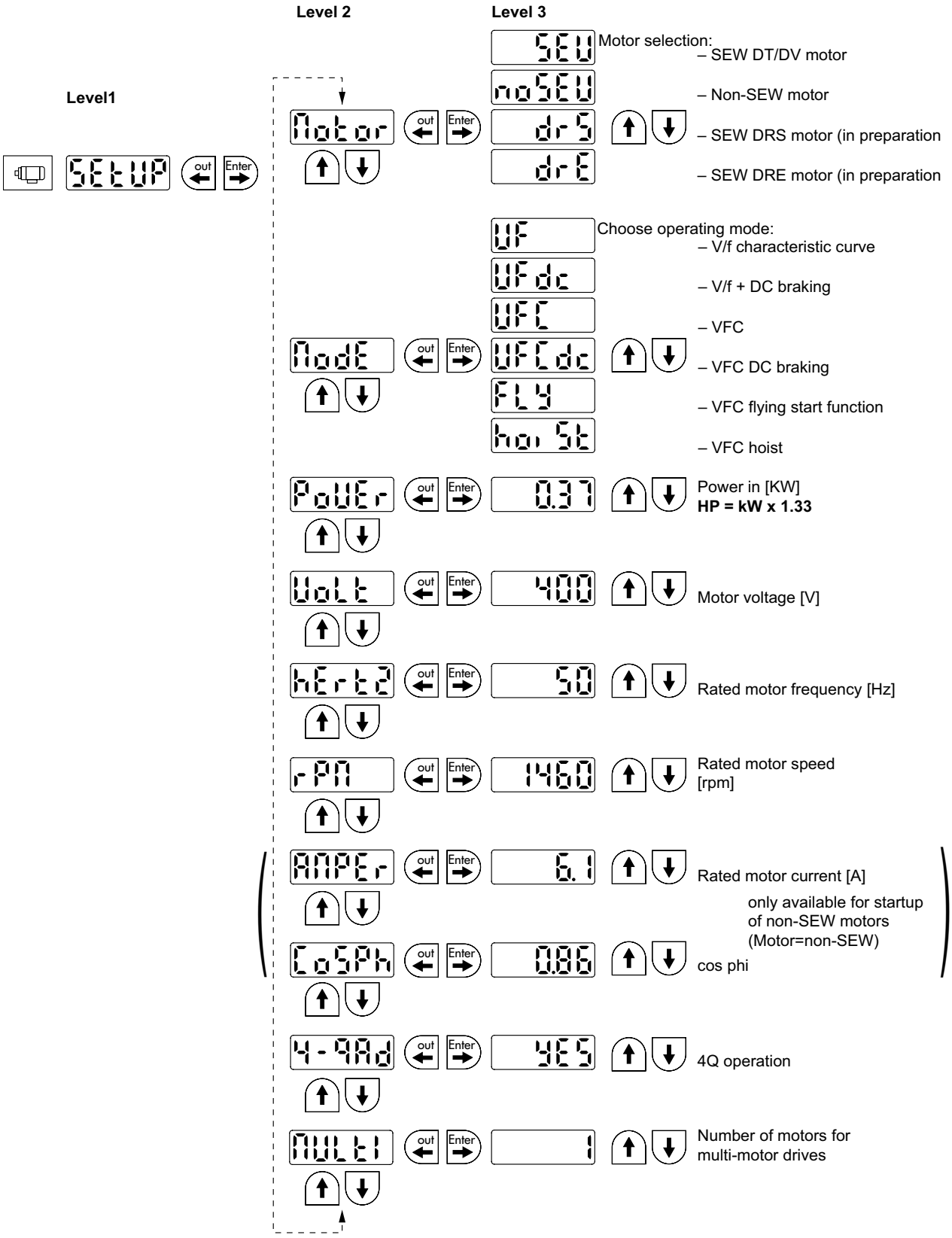
The direction of rotation is set with the CW or CCW terminals.

Bipolar setpoint sources:

Bipolar/fixed setpoint
RS-485/fixed setpoint
SBus 1/fixed setpoint

The direction of rotation is determined by the setpoint. Enable with terminal CW or CCW.

5.8 Startup using the FBG11B keypad



5.8.1 Necessary data

A successful startup requires the following data:

- Motor type (SEW motor or non-SEW motor)
- Motor data
  - Rated voltage and rated frequency
  - Additional for non-SEW motor: Rated current, rated power, power factor cos φ and rated speed.
- Nominal mains voltage

5.8.2 Activating startup

Requirements:

- Drive ”No enable”: Stop

If a smaller or a larger motor is connected (maximum difference one size), then you have to choose the value closest to the rated motor power.

The complete startup procedure is not complete until you have returned to the main menu level by pressing the OUT button.

You can then perform the startup only with motor parameter set 1.

	NOTE
	SEW motor startup is designed for 4-pole motors. It may be useful to startup 2-pole or 6-pole SEW motors as non-SEW motors.

5.8.3 V/f

The default setting for the operating mode is V/f. Use this operating mode if you have no particular requirements and for applications where a high maximum speed is required.

5.8.4 VFC

Startup the inverter in VFC or VFC & DC brake operating mode for the following requirements:

- High torque
- Continuous duty at low frequencies
- Accurate slip compensation
- More dynamic behavior

For this purpose, you will have to choose the VFC or VFC & DC brake operating modes from P-01 at startup.

5.8.5 Startup of multi-motor drive

Multi-motor drives are mechanically connected to each other (e.g. chain drive with several motors). Observe the notes in the publication "Multi-Motor Drives").

Multi-motor drives are possible with installed identical SEW motors only.

- Set the multi parameter of the motor startup to the number of connected motors.

5.8.6 Startup of group drives

Group drives are mechanically decoupled from each other (e.g. different conveyor belts). In this operating mode, the inverter operates without slip compensation and with a constant V/f ratio.

You can operate a group of asynchronous motors on one inverter in V/f characteristic curve operating mode. Important:

- Select V/f operating mode
- Set the power of the largest motor
- Disable automatic adjustment P320/330
- Set boost P321/331 to zero
- Set IxR compensation P322/332 to zero
- Set slip compensation P324/334 to zero
- Set current limitation P303/313 to 1.5 times the total current of all motors
- Set I_{rated} UL monitoring P345/346 to the total current of the connected motors. Implement motor protection individually.

In this operating mode, the inverter operates without slip compensation and with a constant V/f ratio.

	NOTE
	The parameter settings apply to all connected motors.

5.9 Startup with DBG60B

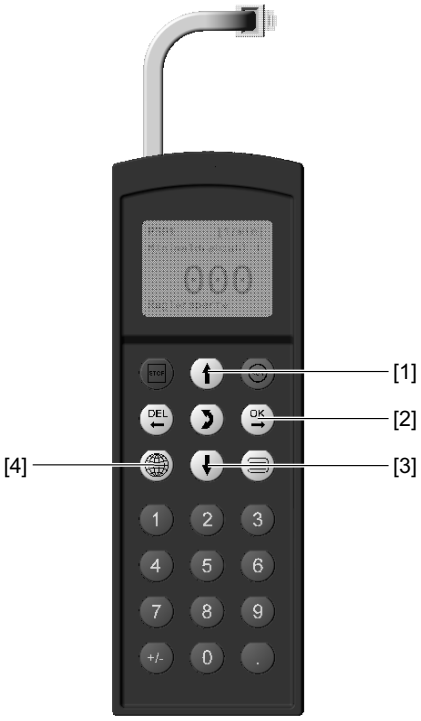
5.9.1 Required data

The following data is required to ensure startup is successful:

- Motor type (SEW or non-SEW motor)
- Motor data
  - Rated voltage and rated frequency
  - Additionally for non-SEW motors: rated current, rated power, power factor cos φ and rated speed
- Rated mains voltage

5.9.2 Selecting a language

The figure below shows the keys for selecting the language.



[1]	↑ key	Move up to the next menu item
[2]	OK key	Confirm entry
[3]	↓ key	Move down to the next menu item
[4]	Language key	A list of languages is displayed

The following text appears on the display when the keypad is switched on for the first time or after activating the start mode:

SEW
EURODRIVE

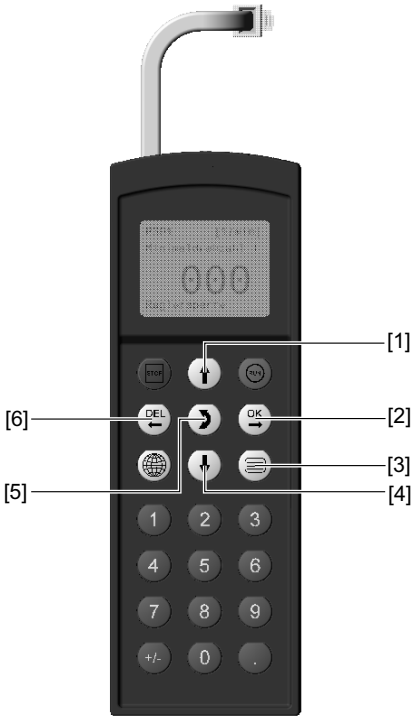
The symbol for language selection then appears on the display.

Proceed as follows to select the language:

- Press the language key. A list of languages is displayed on the screen.
- Select the desired language using the ↑ / ↓ keys
- Confirm your language selection by pressing the OK key. The basic display is now shown in your chosen language.

5.9.3 Startup

The figure below shows the keys required for startup.



[1]	↑ key	Move up to the next menu item
[2]	OK key	Confirm entry
[3]	Context key	Activate the context menu
[4]	↓ key	Move down to the next menu item
[5]	↔ key	Change the menu, display mode ↔ edit mode
[6]	DEL key	Cancel or abort startup

5.9.4 Startup procedure

1. Enter "0" signal at terminal X12:2 (DIØ1 "/CW/STOP), e.g. by disconnecting X13 the electronics terminal block.

```
0.00rpm
0.000Amp
CONTR. INHIBIT
```

2. Press the context key to activate the context menu.

```
PARAMETER MODE
VARIABLE MODE
BASIC VIEW
```

3. Scroll down with the ↓ key until you have selected the menu option "STARTUP".

```
MANUAL MODE
STARTUP
COPY TO DBG
COPY TO MDX
```

4. To startup, select the OK key. The first parameter appears. The flashing cursor under the parameter number indicates that the keypad is in display mode.
   - Use the ↔ key to switch to edit mode. The flashing cursor disappears.
   - Use the ↑ or ↓ key to select "PARAMETER SET 1" or "PARAMETER SET 2".
   - Press the OK key to confirm your selection.
   - Use the ↔ key to switch back to display mode. The flashing cursor appears again.
   - Use the ↑ key to choose the next parameter.

```
STARTUP
PREPARE FOR STAR-
TUP
```

```
C00*STARTUP

PARAMETER SET 1
PARAMETER SET 2
```

5. Set the motor type.

```
C22*MOTORS
SINGLE MOTOR
IDENT. MOTORS
DIFFERENT MOTORS
```

6. Select the operating mode you require. Use the ↑ key to choose the next parameter.
   VFC operating mode is required for activating the flying start or hoist function.

```
C01*OPER. MODE 1
STANDARD V/f
VFC1
```

a. When selecting STANDARD V/f operating mode:

```
C28*DC BRAKING

NO
YES
```

b. When selecting VFC operating mode:

```
C36*OPER.MODE
SPEED CONTROL
HOIST
DC BRAKING
FLYING START
```

7. Select the motor type. If a 2 or 4-pole SEW motor is connected, select the correct motor from the list. If a non-SEW motor or an SEW motor with more than four poles is connected, select "NON-SEW MOTOR" from the list.
   Use the ↑ key to choose the next parameter.

```
C02*MOTOR TYPE 1
DT71D2
DT71D4
DT80K2
```

```
C02*MOTOR TYPE 1

NON-SEW MOTOR
DT63K4/DR63S4
```

8. Enter the rated motor voltage for the selected connection type according to the value specified on the nameplate.

   Example: Nameplate 230△/400⅄50 Hz
   ⅄ connection → enter "400 V".
   Δ connection/transition point at 50 Hz → enter "230 V".
   Δ connection, transition point at 87 Hz → Also enter 230 V. However, set parameter P302 "MAXIMUM SPEED 1" to the value for 87 Hz after startup first. Then start the drive.

   Example: Nameplate 400 Δ/690⅄50 Hz
   Only Δ connection possible → enter "400 V".
   ⅄ connection is not possible.

   Use the ↑ key to choose the next parameter.

```
C03*                    V
RATED MOT. VOLT 1
              +400.000
```

9. Enter the rated frequency specified on the motor nameplate.
   Example: 230Δ/400⅄50 Hz
   Enter "50 Hz" in ⅄ and Δ connection.

   Use the ↑ key to choose the next parameter.

```
C04*                    Hz
RATED MOT. FREQ. 1
              +50.000
```

FOR SEW MOTORS

10. The motor values are stored for SEW two and four-pole motors and need not be entered.

```
C47*4-Q OPERATION
NO
YES
```

FOR NON-SEW MOTORS

10. Enter the following motor nameplate data:
    - C10* Rated motor current, connection type ⅄ or Δ .
    - C11* rated motor power
    - C12* power factor cos φ
    - C13* rated motor speed

```
C47*4-Q OPERATION
NO
YES
```

11. Enter the rated power supply voltage (C05* for SEW motor, C14* for non-SEW motor).

```
C05*                    V
RAT. MAINS VOLT. 1
              +400.000
```

11. Start the calculation for the startup data by choosing "YES". The process lasts a few seconds.

```
C06*CALCULATION

NO
YES
```

FOR SEW MOTORS

12. The calculation is performed. After calculation, the next menu item appears automatically.

```
C06*SAVE

NO
YES
```

FOR NON-SEW MOTORS

12. For non-SEW motors, a calibration process is required to perform the calculation:
    - When prompted, apply a "1" signal to terminal X12:2 (DIØ1 "/CW/STOP").
    - Apply a "0" signal to terminal X12:2 again after the calibration is complete.
    - After calculation, the next menu item appears automatically.

13. Set "SAVE" to "YES" The data (motor parameters) are copied to the non-volatile memory of MOVIDRIVE®.

DATA IS BEING COPIED...

14. The startup procedure is now complete. Use the DEL key to return to the context menu.

MANUAL MODE **STARTUP** COPY TO DBG COPY TO MC07B

15. Use the ↓ key to scroll down until the menu item "EXIT" is selected.

EXIT UNIT **SETTINGS**

16. Confirm your selection by selecting OK. The basic display appears.

0.00rpm 0.000Amp CONTR. INHIBIT

HAZARD

Parameter settings incorrect due to unsuitable data sets.

Severe or fatal injury.

Make sure that the data set you copy is suitable for the application.

- Enter any parameter settings which differ from the factory settings in the parameter list.
- In the case of non-SEW motors, set the correct brake application time (P732 / P735).
- Observe the notes for starting the motor in the section "Starting the Motor".
- With Δ connection and transition point at 87 Hz, set parameter P302/312 "Maximum speed ½" to the value for 87 Hz.

5.9.5 Setting parameters

Proceed in this order to set the parameters:

- Use the context key to call up the context menu. In the context menu, select the "PARAMETER MODE" menu item. Press the OK key to confirm your selection. The flashing cursor under the parameter number indicates that the keypad is in parameter mode.
- Use the ↔ key to switch to edit mode. The flashing cursor disappears.
- Using the ↑ or ↓ key, you can select or set the correct parameter value.
- Press the OK key to confirm the selection or setting.
- Use the ↔ key to switch back to parameter mode again. The flashing cursor appears again.
- Use the ↑ key to choose the next parameter.

5.9.6 Manual operation

The inverter can be controlled using the DBG60B keypad in manual operation (Context menu → Manual operation). The 7-segment display on the unit shows "H" during manual operation.

The binary inputs will be without any functions for the duration of manual operation, with the exception of a /Controller inhibit. A binary input "/Controller inhibit" must be assigned a "1" signal to enable the drive to be started in manual operation.

The direction of rotation is not determined by the "CW/stop" or "CCW/stop" binary inputs. Instead, you select the direction of rotation using the DBG60B keypad.

- Enter the required speed and then the direction of rotation (+ = CW/– = CCW) using the sign key (+/–).

Manual operation remains active when the power supply is switched off and on; however, the inverter is then inhibited.

- Use the "Run" key to enable and start the inverter at n_{min} in the selected direction of rotation. The speed is increased and decreased using the ↑ and ↓ keys.

NOTE

The signals at the binary inputs take effect as soon as manual operation is finished. A binary input /Controller inhibit does not have to be switched from "1" to "0" and back to "1". The drive can start according to the signals at the binary inputs and the setpoint sources.

HAZARD

Risk of crushing if the motor starts up unintentionally.

Severe or fatal injuries.

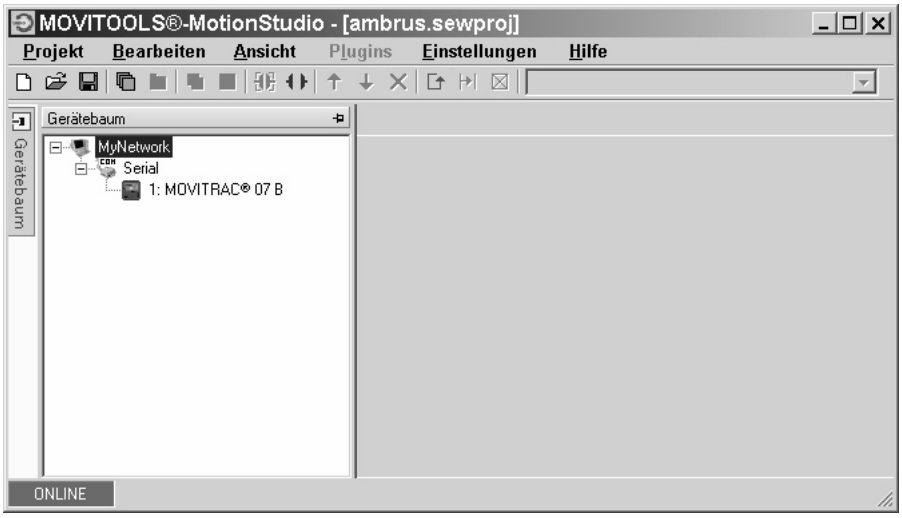
- Ensure that the motor cannot start inadvertently, for example, by removing the electronics terminal block X13.
- Additional safety precautions must be taken depending on the application to avoid injury to people and damage to machinery.

5.10 Startup with PC and MOVITOOLS® MotionStudio

Start MOVITOOLS® MotionStudio in the Windows start menu:

Programs / SEW / MOVITOOLS MotionStudio 5.x/MotionStudio 5.x

Press the MOVITOOLS® MotionStudio [Scan] button to list all connected units in the unit tree.



You can perform a startup by right-clicking on one of the units. You can find additional information in the online Help.

5.11 Startup for MBG11A speed control module

You cannot simultaneously establish communication between MOVITRAC® B / MBG11A and MOVITRAC® B / PC.

The MBG11A can simultaneously specify a setpoint for up to 31 MOVITRAC® B units.

5.11.1 Parameter settings

The following parameters must be set other than the factory setting in MOVITRAC® B. When you use a FBG11B for setting the parameters, set the values indicated in parenthesis:

- P100: RS 485 (2)
- P101: RS 485 (1)
- P871: Set PA2 to "Speed [%]", then P876 PA data enable to "Yes".

The speed is now displayed:–100 % ... 100 % correspond to $-n_{max}$ ... n_{max}.

5.11.2 Input terminals

The following input terminals must be connected with 24 V:

- DI01 CW/Stop:positive + negative direction of rotation are possible by selecting the +/- sign on the MBG11A.
- DI03 Enable/Stop

5.11.3 Settings for process data word

If you do not change the PO2 process data word, you can also use the MBG11B. In this case, the conversion is 1 % = 32 rpm. The results from the relationship 4000 hex = 100 % speed. Refer to the following tables for the respective value.

PO2 = Speed (standard parameter setting P871 = speed)

Percent	Hex	Decimal	Speed
1 %	A4 hex	164 dec	32
10 %	666 hex	1638 dec	328
25 %	1000 hex	4096 dec	819.2
33 %	1555 hex	5461 dec	1092.3
50 %	2000 hex	8192 dec	1638.4
75 %	3000 hex	12288 dec	2457.6
100 %	4000 hex	16384 dec	3276.8

PO2 = Speed [%] (changed parameter setting P871 = speed [%])

Percent	Hex	Decimal	Speed
1 %	A4 hex	164 dec	n_max / 100
10 %	666 hex	1638 dec	n_max / 10
25 %	1000 hex	4096 dec	n_max / 4
33 %	1555 hex	5461 dec	n_max / 3
50 %	2000 hex	8192 dec	n_max / 2
75 %	3000 hex	12288 dec	n_max / 1.333
100 %	4000 hex	16384 dec	n_max

5.12 Starting up pumps and fans of non-SEW motors

We recommend that you adjust the following parameters when using pumps, fans, and non-SEW motors due to the physical conditions of the application :

- Operation of the drive in the V/F characteristic curve operating mode; Parameter 700 / 701 = V/f characteristic curve (21)
- Disable automatic adjustment; Parameter 320 / 330 = Off (0)
- Set IxR adjustment to 0; Parameter 322 / 332 = 0
- Set boost to 0; Parameter 321 / 331 = 0
- Minimize slip compensation and set to 0 if required; Parameter 324 / 334
- Increase ramp times; Parameters 130 / 140 and 131 / 141

Deactivating the slip compensation might require that you specify a higher setpoint speed to achieve the required air/volume flow.

5.13 Starting the motor

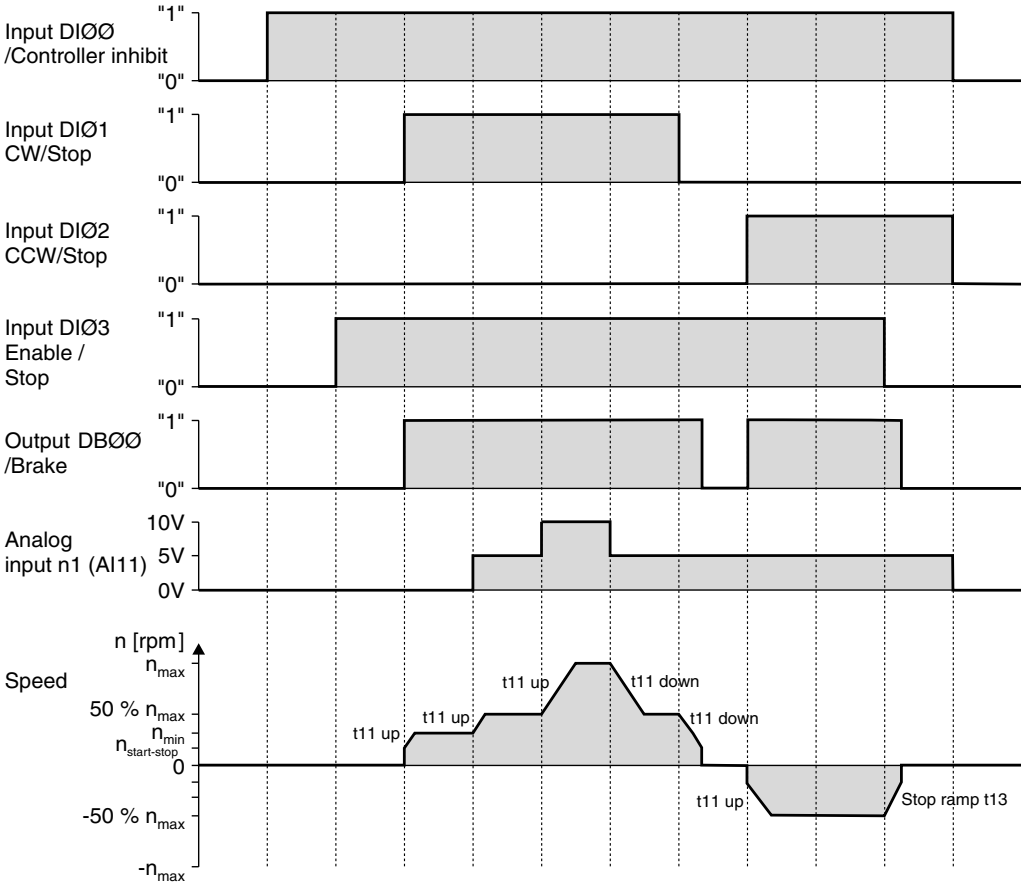
5.13.1 Analog setpoint specification

The following table shows which signals must be present on terminals X11:2 (AI1) and X12:1 … X12:4 (DIØØ … DIØ3) when the "unipolar/fixed setpoint" setpoint is selected (P100) in order to operate the drive with an analog setpoint entry.

Function	X11:2 (AI11) Analog input n1	X12:1 (DIØØ) /Controller inhibit[1)]	X12:2 (DIØ1) CW/stop	X12:3 (DIØ2) CCW/ stop	X12:4 (DIØ3) Enable/ stop	X12:5 (DIØ4) n11/n21	X12:6 (DIØ5) n12/n22
Controller inhibit	X	0	X	X	X	0	0
Stop	X	1	X	X	0	0	0
Enable and stop	X	1	0	0	1	0	0
Clockwise at 50 % n_{max}	5 V	1	1	0	1	0	0
Clockwise with n_{max}	10 V	1	1	0	1	0	0
Counterclockwise with 50 % n_{max}	5 V	1	0	1	1	0	0
Counterclockwise with n_{max}	10 V	1	0	1	1	0	0

1) No default setting

The following travel cycle shows by way of example how the motor is started with the assignment of terminals X12:1 … X12:4 and analog setpoints. Binary output X10:3 (DBØØ "/Brake") is used for switching brake contactor K12.



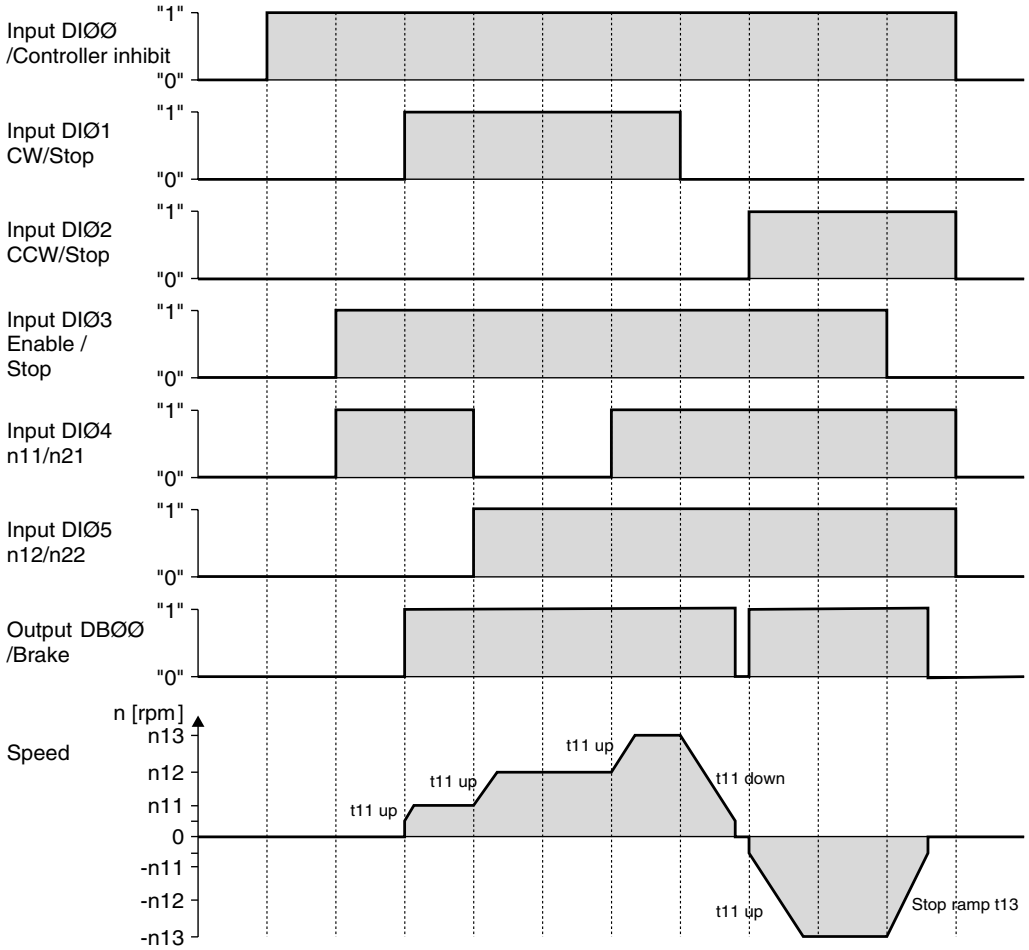
	NOTE
	The motor is not energized in the event of controller inhibit. A motor without brake will coast to standstill.

5.13.2 Fixed setpoints

The following table shows which signals must be present on terminals X12:1 … X12:6 (DIØØ … DIØ5) when the "unipolar/fixed setpoint" setpoint is selected (P100), in order to operate the drive with the fixed setpoints.

Function	X12:1 (DIØØ) /Controller inhibit	X12:2 (DIØ1) CW/stop	X12:3 (DIØ2) CCW/stop	X12:4 (DIØ3) Enable/stop	X12:5 (DIØ4) n11/n21	X12:6 (DIØ5) n12/n22
Controller inhibit	0	X	X	X	X	X
Stop	1	X	X	0	X	X
Enable and stop	1	0	0	1	X	X
CW operation with n11	1	1	0	1	1	0
CW operation with n12	1	1	0	1	0	1
CW operation with n13	1	1	0	1	1	1
CCW operation with n11	1	0	1	1	1	0

The following travel cycle shows by way of example how the drive is started with the assignment of terminals X12:1 … X12:6 and the internal fixed setpoints. Binary output X10:3 (DBØØ "/Brake") is used for switching brake contactor K12.



	NOTE
	The motor is not energized in the event of controller inhibit. A motor without brake will coast to standstill.

5.14 Parameter list

All parameters that can also be displayed and edited using the keypad are indicated as follows in the "FBG" (keypad) column:

- Selection in long menu
- Selection in short or long menu
- Selection using symbol on keypad and in long menu
- Selection within FGB motor startup

If a choice is offered, the factory setting is indicated in **bold**.

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
0__			**Display values** (read only)			
00_			**Process values**			
000		8318	Speed (signed)		[rpm]	
001		8501	User display for DBG11B		[Text]	
002		8319	Frequency (signed)		[Hz]	
004		8321	Output current (amount)		[% I_N]	
005		8322	Active current (signed)		[% I_N]	
008	Short	8325	DC link voltage		[V]	
009		8326	Output current		[A]	
01_			**Status displays**			
010		8310	Inverter status		[Text]	
011		8310	Operating state		[Text]	
012		8310	Error status		[Text]	
013		8310	Current parameter set		Current parameter set	
014	Long	8327	Heat sink temperature		[°C]	
02_			**Analog setpoints**			
020		8331	Analog input AI1		[V]	
021	Long	8332	Analog input AI2 (optional)		[V]	
03_			**Binary inputs**			
030		8844	Binary input DI00		**Fault reset**	
031		8335	Binary input DI01		CW / STOP (fixed assignment)	
032		8336	Binary input DI02		**CCW/stop**	
033		8337	Binary input DI03		**Enable/stop**	
034		8338	Binary input DI04		**n11/n21**	
035		8339	Binary input DI05		**n12/n22**	

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
039	Lonb	8334	Binary inputs DI00 ... DI05		Collective display of binary inputs	
05_			**Binary outputs**			
051		8349	Binary output DO01		**/FAULT**	
052		8349	Binary output DO02		**Brake released**	
053		8349	Binary output DO03		**Ready**	
059	Lonb	8349	Binary outputs DO01 ... DO03		Collective display of binary outputs	
07_			**Unit data**			
070		8301	Unit type		[Text]	
071		8361	Rated output current		[A]	
076		8300	Firmware basic unit		[Part number and version]	
077		–	DBG firmware		Only in DBG60B	
08_			**Error memory**			
080 ... 084	Lonb	8366 ... 8370	Error t-0 ... t-4	Error code	Background information for previous faults.	
09_			**Bus diagnostics**			
094	Lonb	8455	PO1 setpoint		[hex]	
095		8456	PO2 setpoint		[hex]	
096		8457	PO3 setpoint		[hex]	
097		8458	PI1 actual value		[hex]	
098		8459	PI2 actual value		[hex]	
099		8460	PI3 actual value		[hex]	

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
1__			**Setpoints / ramp generators** (on FBG only parameter set 1)			
10_			**Setpoint selection / frequency input**			
100		8461	Setpoint source	0 **1** 2 4 6 7 8 9 10 11 14	Bipolar/fixed setpoint **Unipolar/fixed setpoint** RS-485/fixed setpoint Motor potentiometer/fixed setpoint Fixed setpoint + AI1 Fixed setpoint* + AI1 MASTER SBus1 MASTER RS-485 SBus 1/fixed setpoint Frequency setpoint input / Fixed setpoint Bipolar AI2 / Fixed setpoint	
101	Short	8462	Control signal source	**0** 1 3 4	**Terminals** RS -485 SBus 1 3-wire control	
102		8840	Frequency scaling	0.1 ... **10** ... 120.00 [kHz]		
103		10247.15	FI1 reference	**0** 1	**n_{max}** $n_{reference}$	
104		10247.10	Setpoint reference speed $n_{reference}$	0 ... **3000** ... 6000 rpm		
105		10416.1	Wire breakage detection	0 2 4 **7**	No response Immediate stop / fault Rapid stop / fault **Rapid stop / warning**	
106		10247.11	FI1 char. curve x1	**0** ... 100 %		
107		10247.12	FI1 char. curve y1	–100 % ... **0** ... +100 %		
108	Lonb	10247.13	FI1 characteristic x2	0 ... **100 %**		
109		10247.14	FI1 characteristic curve y2	–100 % ... 0 ... **+100 %**		
11_			**Analog input 1 (0 ... 10 V)**			
110	Short	8463	AI1 scaling	0.1 ... **1** ... 10		
112		8465	AI1 Operating mode	**1** 5 6 7 8 9	**10 V, reference maximum speed** 0 - 20 mA, reference maximum speed 4 - 20 mA, reference maximum speed 0 - 10 V, n-reference 0 - 20 mA, n-reference 4 - 20 mA, n-reference	
113		8466	AI1 voltage offset	–10 V ... **0** ... +10 V		
116		10247.6	AI1 characteristic curve x1	**0** ... 100 %		
117		10247.7	AI1 characteristic curve y1	–100 % ... **0** ... +100 %		
118		10247.8	AI1 characteristic curve x2	0 ... **100 %**		
119		10247.9	AI1 characteristic curve y2	–100 % ... 0 ... **+100 %**		

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
12_			**Analog input AI2 / FBG speed control module (option)**			
120		8469	AI2 operating mode	**0** 1 2	**No function** 0 ... ±10 V + Setpoint 0 ... 10 V current limitation	
121	LonB	8811	Addition FBG setpoint control module	**0** 1 2	**Off** On On (without fixed setpoint)	
122		8799	Direction of rotation FBG manual operation	**0** 1 2	**Unipolar CW** Unipolar CCW Bipolar CW and CCW	
126		10247.1	AI2 char. curve x1	–100 % ... **0** ... +100 % (–10 V ... **0** ... +10 V)		
127		10247.2	AI2 char. curve y1	–100 % ... **0** ... +100 % ($-n_{max}$ ... **0** ... $+n_{max}$ / **0** ... I_{max})		
128	LonB	10247.3	AI2 characteristic curve x2	–100 % ... 0 ... **+100 %** (–10 V ... 0 ... **+10 V**)		
129		10247.4	AI2 characteristic curve y2	–100 % ... 0 ... **+100 %** ($-n_{max}$ ... 0 ... $\mathbf{+n_{max}}$ / 0 ... $\mathbf{I_{max}}$)		
13_ / 14_			**Speed ramps 1 / 2**			
130 / 140		8807 / 9264	Ramp t11 / t21 up	0.1 ... **2** ... 2000 [s]		
131 / 141		8808 / 9265	Ramp t11 / t21 down	0.1 ... **2** ... 2000 [s]		
134 / 144		8474 / 8482	Ramp t12 / t22	0.1 ... **10** ... 2000 [s]		
135 / 145	LonB	8475 / 8483	S pattern t23/t22	**0** 1 2 3	**Off** Weak Medium Strong	
136 / 146		8476 / 8484	Stop ramp t13 / t23	0.1 ... **2** ... 20 [s]		
139 / 149		8928 / 8929	Ramp monitoring 1 / 2	**0** 1	**YES** NO	
15_			**Motor potentiometer function**			
150		8809	Ramp t3 up = down	0.2 ... **20** ... 50 [s]		
152	LonB	8488	Save last setpoint	**Off** On	**Off** On	
16_ / 17_			**Fixed setpoints**			
160 / 170		8489 / 8492	Internal setpoint n11 / n21	0 ... **150** ... 5000 [rpm]		
161 / 171		8490 / 8493	Internal setpoint n12 / n22	0 ... **750** ... 5000 [rpm]		
162 / 172		8491 / 8494	Internal setpoint n13 / n23	0 ... **1500** ... 5000 [rpm]		
163 / 173		8814 / 8817	n11/n21 PI controller	0 ... **3** ... 100 [%]		
164 / 174		8815 / 8818	n12/n22 PI controller	0 ... **15** ... 100 [%]		
165 / 175		8816 / 8819	n13/n23 PI controller	0 ... **30** ... 100 [%]		

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
2__			**Controller parameters**			
25_			**PI controller**			
250		8800	PI controller	**0** 1 2	**Off** Normal Inverted	
251		8801	P-gain	0 ... **1** ... 64		
252		8802	I-component	0 ... **1** ... 2000 [s]		
253	Lon6	8465	PI actual value mode	**1** 5 6 7 8 9	**10 V, reference maximum speed** 0 - 20 mA, reference maximum speed 4 - 20 mA, reference maximum speed 0 - 10 V, n-reference 0 - 20 mA, n-reference 4 - 20 mA, n-reference	
254		8463	PI actual value scaling	0.1 ... **1.0** ... 10.0		
255		8812	PI actual value offset	**0.0** ... 100.0 [%]		
3__			**Motor parameters** (on FBG only parameter set 1)			
30_ / 31_			**Limits 1 / 2**			
300 / 310		8515 / 8519	Start/stop speed 1 / 2	0 ... 150 [rpm]		
301 / 311	Lon6	8516 / 8520	Minimum speed 1 / 2	0 ... **15** ... 5500 [rpm]		
302 / 312		8517 / 8521	Maximum speed 1 / 2	0 ... **1500** ... 5500 [rpm]		
303 / 313	Lon6	8518 / 8522	Current limit 1 / 2	0 ... **150** [% I_N]		
32_ / 33_			**Motor adjustment 1 / 2**			
320 / 330		8523 / 8528	Automatic adjustment 1 / 2	Off **On**	Off **On**	
321 / 331		8524 / 8529	Boost 1 / 2	0 ... 100 [%]		
322 / 332	Lon6	8525 / 8530	IxR compensation 1 / 2	0 ... 100 [%]		
323 / 333		8526 / 8531	Pre-magnetization time 1 / 2	0 ... 2 [s]		
324 / 334		8527 / 8532	Slip compensation 1 / 2	0 ... 500 [rpm]		
34_			**I_N UL monitoring**			
345 / 346	Lon6	9114 / 9115	I_N UL monitoring 1 / 2	0.1 ... 500 A		

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
4__			**Reference messages**			
40_			**Speed reference message**			
400		8539	Speed reference value	0 ... **750** ... 5000 [rpm]		
401		8540	Hysteresis	0 ... **100** ... +500 [rpm]		
402	Lon6	8541	Delay time	0 ... **1** ... 9 [s]		
403		8542	Signal = "1" when	**0** 1	**n < n_{ref}** n > n_{ref}	
43_			**Current reference signal**			
430		8550	Current reference value	0 ... **100** ... 150 % I_N		
431		8551	Hysteresis	0 ... **5** ... 30 % I_N		
432	Lon6	8552	Delay time	0 ... **1** ... 9 s		
433		8553	Signal = "1" when	**0** 1	**I < I_{ref}** I > I_{ref}	
44_			**Imax signal**			
440		8554	Hysteresis	0 ... **5** ... 50 % I_N		
441	Lon6	8555	Delay time	0 ... **1** ... 9 s		
442		8556	Signal = "1" when	**0** 1	**I < I_{max}** I > I_{max}	
45_			**PI controller reference signal**			
450		8813	PI actual value reference			
451	Lon6	8796	Signal = "1" when	0 **1**	PI Actual value < PI ref **PI Actual value > PI ref**	
5__			**Monitoring parameters** (on FBG only parameter set 1)			
50_			**Speed monitoring 1 / 2**			
500 / 502		8557 / 8559	Speed monitoring 1 / 2	**0** 3	**Off** Motor / regenerative	
501 / 503	Lon6	8558 / 8560	Delay time 1 / 2	0 ... **1** ... 10 [s]		
54_			**Gear unit/motor monitoring**			
540		9284	Response to drive vibration / warning		Factory setting: Display fault	
541		9285	Response to drive vibration / fault		Factory setting: Rapid stop / warning	
542		9286	Response to oil aging / fault		Factory setting: Display fault	
543	Lon6	9287	Response to oil aging / warning		Factory setting: Display fault	
544		9288	Oil aging / over-temperature		Factory setting: Display fault	
545		9289	Oil aging / ready signal		Factory setting: Display fault	
549		9290	Response to brake wear		Factory setting: Display fault	

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
6__			**Terminal assignment**			
60_			**Binary inputs**			
601	Short	8336	Binary input DI02 assignment		0: No function 1: Enable / stop (factory setting DI03) 2: CW/stop 3: CCW / stop (factory setting DI02) 4: n11 / n21 (factory setting DI04) 5: n12 / n22 (factory setting DI05) n13 = n11 + n12 6: Fixed setpoint switchover 7: Parameter set switchover 8: Ramp switchover 9: Motor potentiometer up 10: Motor potentiometer down 11: /External fault 12: Fault reset (factory setting DI00) 19: Slave free running 20: Setpoint acceptance active 26: TF signal (only with DI05) 27: Vibration/warning 28: Vibration/fault 29: Brake wear 30: Controller inhibit 33: Oil aging/warning 34: Oil aging/fault 35: Oil aging / overtemperature 36: Oil aging/ready	
602		8337	Binary input DI03 assignment			
603		8338	Binary input DI04 assignment			
604		8339	Binary input DI05 assignment			
608		8844	Binary input DI00 assignment			
62_			**Binary outputs**			
620	Short	8350	Binary output DO01 assignment		0: No function 1: /Fault (factory setting DO01) 2: Ready (factory setting DO03) 3: Output stage on 4: Rotating field on 5: Brake released (factory setting DO02 / not with DO03) 8: Parameter set 9: Speed reference message 11: Comparison message setpoint-actual value 12: Current reference message 13: Imax signal 21: IPOS output 22: /IPOS fault 23: PI controller actual value reference 24: Ex-e current limit active (in preparation) 27: Safe stop 30: Ixt warning 31: Ixt fault	
621		8351	Binary output DO02 assignment			
622		8916	Binary output DO03 assignment			

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
64_			**Analog outputs AO1** (optional)			
640	LonB	8568	Analog output AO1	**0** 1 2 3 4 5 6 7 11 12	**No function** Ramp generator input Setpoint speed Actual speed Actual frequency Output current Active current Unit utilization Actual speed (signed) Actual frequency (signed)	
641		10248.5	AO1 reference	**0** 1 2	**3000 rpm , 100 Hz, 150 %** n_{max} $n_{set\ reference}$	
642		8570	AO1 Operating mode	**0** 2 3 4	**No function** 0 ... 20 mA 4 ... 20 mA 0 ... 10 V	
646	LonB	10246.1	AO1 Characteristic curve x1	–100 % ... **0** ... +100 %		
647		10246.2	AO1 Characteristic curve y1	**0** ... 100 %		
648		10246.3	AO1 Characteristic curve x2	–100 % ... 0 ... **+100 %**		
649		10246.4	AO1 Characteristic curve y2	0 ... **100 %**		
7__			**Control functions** (on FBG only parameter set 1)			
70_			**Operating modes 1 / 2**			
700 / 701		8574 / 8575	Operating mode 1 / 2	0 2 3 4 **21** 22	VFC VFC & HOIST VFC & DC braking VFC & flying start function **V/f characteristic curve** V/f & DC braking	
71_			**Standstill current 1 / 2**			
710 / 711	LonB	8576 / 8577	Standstill current 1 / 2	**0** ... 50 % I_{Mot}		
72_			**Setpoint stop function 1 / 2**			
720 / 723		8578 / 8581	Setpoint stop function 1 / 2	**Off** On	**Off** On	
721 / 724	LonB	8579 / 8582	Stop setpoint 1 / 2	0 ... **30** ... 500 [rpm]		
722 / 725		8580 / 8583	Start offset 1 / 2	0 ... **30** ... 500 [rpm]		
73_			**Brake function 1 / 2**			
731 / 734		8749 / 8750	Brake release time 1 / 2	**0** ... 2 [s]		
732 / 735	LonB	8585 / 8587	Brake application time 1 / 2	0 ... 2 [s]		

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
74_			**Speed skip function**			
740 / 742	LonB	8588 / 8590	Skip window center 1 / 2	0 ... **1500** ... 5000 rpm		
741 / 743		8589 / 8591	Skip width 1 / 2	**0** ... 300 rpm		
75_			**Master/slave function**			
750	LonB	8592	Slave setpoint			
751		8593	Scaling slave setpoint			
76_			**Manual operation**			
760	LonB	8798	Lock RUN / STOP buttons	**Off** On	**Off** On	
77_			**Energy-saving function**			
770	LonB	8925	Energy-saving function	**Off** On	**Off** On	
8__			**Unit function** (on FBG only parameter set 1)			
80_			**Setup**			
800	Short	–	Short menu	long **short**		
801		–	DBG language			
802		8594	Factory setting	**no** Hours ALL NEMA	**0 / No** 1 / Standard 2 / Delivery status 4 / NEMA delivery status	
803		8595	Parameter lock	**Off** On	**Off** On	
804		8596	Reset statistics data		**No action** Error memory	
805		–	Rated mains voltage		50 ... 500 V	
806		–	Copy DBG → MOVITRAC® B		Yes **No**	
807		–	Copy MOVITRAC® B → DBG		Yes **No**	
808		8660	24 V output voltage		**Off** On	
809		10204.1	IPOS enable		**Off** On	
81_			**Serial communication**			
810	LonB	8597	RS-485 address	**0** ... 99		
811		8598	RS-485 group address	**100** ... 199		
812		8599	RS-485 timeout interval	**0** ... 650 [s]		

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
82_			**Brake operation 1 / 2**			
820 / 821		8607 / 8608	4-quadrant operation 1 / 2	Off **On**	Off **On**	
83_			**Fault responses**			
830		8609	Response terminal "external fault"	2 **4** **7**	Immediate stop / fault **Rapid stop / fault** (830) **Rapid stop / warning** (833 / 836)	
833	LonB	8612	Response to RS-485 timeout			
836		8615	Response to SBus timeout			
84_			**Reset behavior**			
840		8617	Manual reset		Yes **No**	
85_			**Scaling actual speed value**			
850		8747	Scaling factor numerator	**1** ... 65535 (can be set with SHELL only)		
851		8748	Scaling factor denominator	**1** ... 65535 (can be set with SHELL only)		
852	LonB	8772 / 8773	User-defined unit	Text		
853		9312	Scaled speed FBG	**0** 1	**Speed** Scaled speed	
86_			**Modulation 1 / 2**			
860 / 861	LonB	8620 / 8621	PWM frequency 1 / 2	**4** 8 12 16	**4 kHz** 8 kHz 12 kHz 16 kHz	
862 / 863		8751 / 8752	PWM fix 1 / 2	On **Off**	On **Off**	
87_			**Process data parameter setting**			
870		8304	Setpoint description PO1		**No function** (factory setting P872) **Setpoint speed** (factory setting P871) Max. speed Ramp **Control word 1** (factory setting P870) Control word 2 Setpoint speed [%] IPOS PO data PI controller setpoint [%]	
871		8305	Setpoint description PO2			
872		8306	Setpoint description PO3			
873		8307	Actual value description PI1		No function **Actual speed** (factory setting P874) **Output current** (factory setting P875) Active current **Status word 1** (factory setting P873) Actual speed [%] IPOS PI-DATA PI controller actual value [%]	
874		8308	Actual value description PI2			
875		8309	Actual value description PI3			
876	LonB	8622	PO data enable		No **Yes**	

No.	FBG	Index dec.	Name	Range / factory setting		Value after startup
				Display	MOVITOOLS® MotionStudio	
88_			**Serial communication SBus**			
880	LonB	8937	SBus protocol	**0 / MoviLink** 1 / CANopen		
881		8600	SBus address	**0** ... 63		
882		8601	SBus group address	**0** ... 63		
883	LonB	8602	SBus timeout interval	**0** ... 650 [s]		
884		8603	SBus baud rate	125 250 **500** 1000	125 kbaud 250 kbaud **500 kbaud** 1 MBaud	
886		8989	CANopen address	1 ... **2** ... 127		

6 Operation

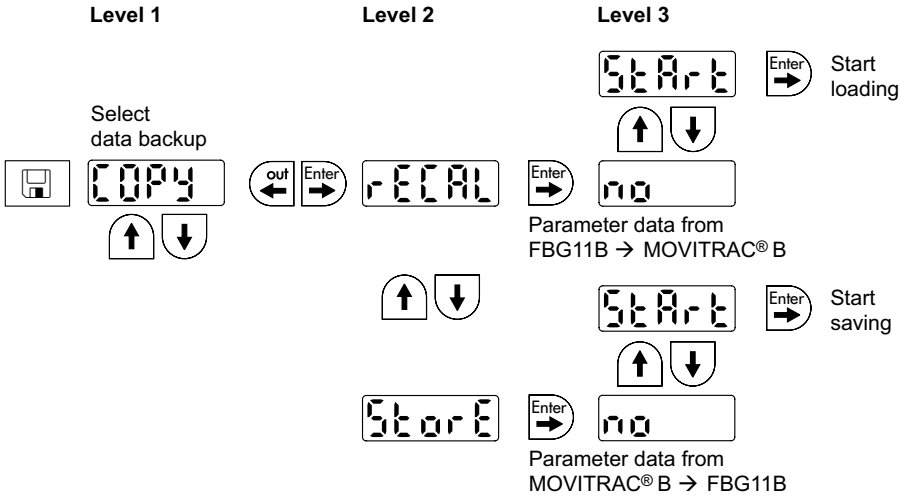
6.1 Data backup

6.1.1 Data backup with FBG11B

Use the FBG11B keypad to download parameter data from the MOVITRAC® B to the keypad or copy from the keypad to the MOVITRAC® B.

After copying the parameters, check for accuracy.

Data backup with FBG11B



After copying data, the MOVITRAC® B is inhibited. The inhibited status is indicated by a flashing STOP in the status display. The status LED also slowly flashes yellow.

You can lift the inhibit by taking one of the following measures:

- Pressing the RUN button on the FBG11B
- Switching the mains off, waiting 10 seconds, and switching the mains back on

6.1.2 Data backup using DBG60B

Copy the parameter set from MOVITRAC® B into the DBG60B keypad. You have the following options:

- In the context menu, select the "COPY TO DBG" menu item. Confirm your selection by pressing OK. The parameter set is copied from MOVITRAC® B to DBG60B.
- In the context menu, select the "PARAMETER MODE" menu item. Select parameter P807 "MCB → DBG". The parameter set is copied from MOVITRAC® B to DBG60B.

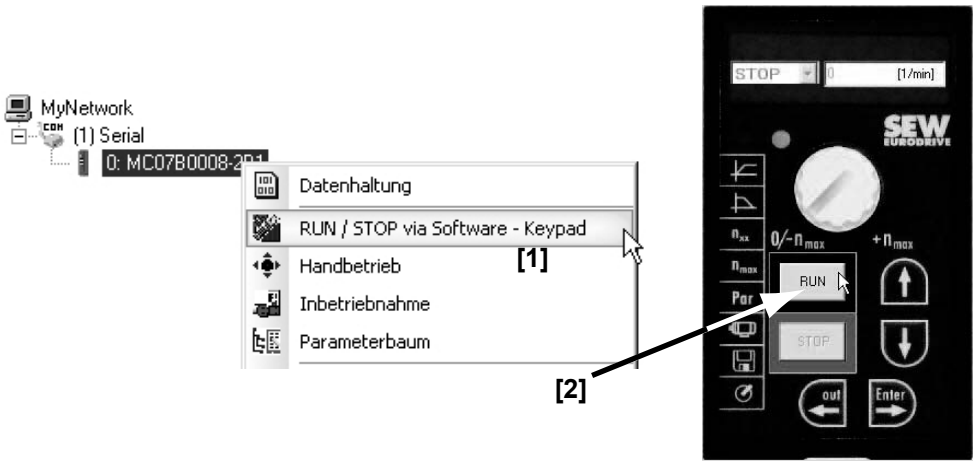
6.1.3 Data backup using UBP11A

Copy the parameter set from MOVITRAC® B to the UBP11A parameter module. To do so, press the button at the lower end of the module. You need a pointed object for this purpose.

6.1.4 Data backup using MOVITOOLS® MotionStudio

When you use MOVITOOLS® MotionStudio to transfer data to the MOVITRAC® B frequency inverter, you must re-enable the inverter as follows:

- Select unit in the network.
- Right click to open the context menu.
- Select menu [RUN/STOP via software keypad] [1]
- Select [RUN] in the software keypad [2]



6.2 Return codes (r-19 ... r-38)

Return codes MOVITRAC® B:

No.	Designation	Meaning
19	Parameter lock activated	Parameters cannot be changed
20	Factory setting in progress	Parameters cannot be changed
23	Option card missing	The option card required for the function is missing.
27	Option card missing	The option card required for the function is missing.
28	Controller inhibit required	Controller inhibit required
29	Invalid value for parameter.	• Invalid value for parameter. • FGB manual operation selection invalid as PC is in active manual operation.
32	Enable	You cannot perform this function in ENABLED status
34	Error during execution	• Error while saving in FBG11B. • Startup not performed with FBG. Perform FGB startup with MotionStudio or select a new motor.
38	FBG11B incorrect data set	Stored data set does not match the unit

6.3 Status displays

6.3.1 FBG11B keypad

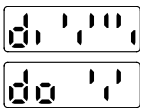
If the status is "Drive enabled", the display will show the calculated actual speed.

Status	Display
Drive "Controller inhibit"	oFF
Drive "No enable"	StoP
Drive "Enable"	8888 (actual speed)
Factory setting	SEt (Set)
Standstill current	dc
24 V operation	24U

Status of binary inputs/outputs

Parameter P039 (binary inputs) and parameter P059 (binary outputs) are adopted in the parameter menu as display parameters. The status is displayed as binary. Every binary input or output has two segments vertically on top of one another of the 7-segment display assigned to it. The upper segment lights up when the binary input or output is set, and the lower segment lights up when the binary input or output is not set. The two 7-segment displays on the right are displayed if P039 (di = binary inputs) or P059 (do = binary outputs) are output.

Examples:



Top: Input status: DI00 = 1 / DI01 = 0 / DI02 = 1 / DI03 = 1 / DI04 = 1 / DI05 = 0

Bottom: Output status: DO01 = 1 / DO02 = 0 / DO03 = 1

6.3.2 LED flash codes

The LED on the front of the unit signals the following states:

Status	Display (optional with FBG)	LED flash code status of basic unit
"ENABLE"	Speed	Constant green light
"ENABLE" at current limit	Speed flashes	Rapid green flashing
"CURRENT AT STAND-STILL"	dc	Slow green flashing
Timeout	Errors 43 / 46 / 47	Flashing green/yellow
"NO ENABLE"	Stop	Constant yellow light
"FACTORY SETTING"	SEt	Rapid yellow flashing
"CONTROL.INHIBIT"	oFF	Rapid yellow flashing
"24 V operation"	Flashing 24U	Slow yellow flashing
"SAFE STOP"	Flashing U	Slow yellow flashing
FGB manual operation active or inverter stopped using "stop" button.	FGB manual operation symbol or "stop" is flashing	Yellow on long, off briefly
Copy	Fault 97	Flashing red/yellow
System fault	Faults 10 / 17 ... 24 / 25 / 32 / 37 / 38 / 45 / 77 / 80 / 94	Constant red light
Overvoltage / phase failure	Faults 4 / 6 / 7	Slow red flashing
Overload	Faults 1 / 3 / 11 / 44 / 84	Rapid red flashing
Monitoring	Faults 8 / 26 / 34 / 81 / 82	2 x red flashing
Motor protection	Faults 31 / 84	3 x red flashing

⚠ WARNING!

Incorrect interpretation of display U = "Safe stop" active.

Severe or fatal injuries.

The display U = "Safe stop" is not safety-related and must not be used as a safety function.

6.4 Unit status codes

Use status word 1 to determine the unit status code.

Code	Meaning
0x0	Not ready
0x1	Controller inhibit
0x2	No enable
0x3	Standstill current active, no enable
0x4	Enable
0x8	Factory setting is active

6.5 DBG60B keypad

6.5.1 Basic displays

0.00rpm 0.000Amp CONTR. INHIBIT	Display when /CONTROLLER INHIBIT = "0".
0.00rpm 0.000Amp NO ENABLE	Display when inverter is not enabled ("ENABLE/STOP" = "0").
950.00rpm 0.990Amp ENABLE (VFC)	Display for enabled inverter.
NOTE 6: VALUE TOO HIGH	Information message
(DEL)=Quit FAULT 9 STARTUP	Fault display

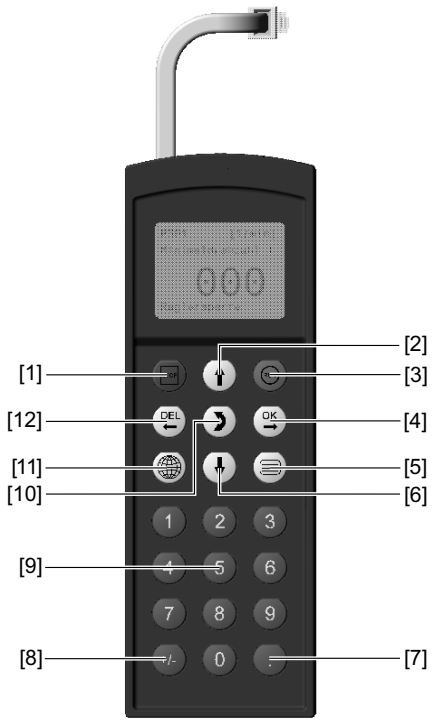
6.5.2 Information messages

Information messages on the DBG60B (ca. 2 s in duration) or in MOVITOOLS® MotionStudio/SHELL (message that can be acknowledged):

No.	Text DBG60B/SHELL	Description
1	ILLEGAL INDEX	Index addressed via interface not available.
2	NOT IMPLEMENT.	• Attempt to execute a function that is not implemented. • An incorrect communication service has been selected. • Manual operation selected via invalid interface (e.g. fieldbus).
3	READ ONLY VALUE	Attempt to modify a read only value.
4	PARAM. LOCKED	Parameter lock P803 = "ON". Parameter cannot be altered.
5	SETUP ACTIVE	Attempt to change parameters when factory setting is active.
6	VALUE TOO HIGH	Attempt to enter a value that is too high.
7	VALUE TOO LOW	Attempt to enter a value that is too low.
8	REQ. CARD MISSING	The option card required for the selected function is missing.
-		
10	ONLY VIA ST1	Manual mode must be completed using X13:ST11/ST12 (RS 485).
11	ONLY TERMINAL	Manual mode must be exited via TERMINAL (DBG60B or UWS21B).
12	NO ACCESS	Access to selected parameter denied.
13	CTRL. INHIBIT MISSING	Set terminal DIØØ "/Controller inhibit" = "0" for the selected function.
14	INVALID VALUE	Attempt to enter an invalid value.
--		
16	PARAM. NOT SAVED	Overflow of EEPROM buffer, e.g., due to cyclic write access. Parameter is saved in EEPROM and is not protected against loss following POWER OFF.
17	INVERTER ENABLED	• Parameter to be changed can only be set in the state "CONTROLLER INHIBIT". • Attempt to change to manual mode during live operation

6.5.3 Functions of the DBG60B keypad

Key assignments for DBG60B



[1]	Stop key	Stop
[2]	↑ key	Up arrow, moves up to the next menu item
[3]	RUN key	Start
[4]	OK key	OK, confirms the entry
[5]	Context key	Activate the context menu
[6]	↓ key	Down arrow, moves down to the next menu item
[7]	. key	Decimal point
[8]	± key	Sign reversal
[9]	Keys 0 ... 9	Digits 0... 9
[10]	↔ key	Change menu
[11]	Language key	Select language
[12]	DEL key	Delete previous entry

Copy function of the DBG60B

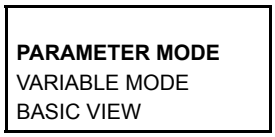
The DBG60B keypad can be used for copying complete parameter sets from one MOVITRAC® unit to other MOVITRAC® units. Proceed as follows to do so:

- In the context menu, select the menu item "COPY TO DBG". Confirm your selection by pressing OK.
- After the copying process has finished, plug the keypad in the other inverter.
- In the context menu, select the menu item "COPY TO MC07B". Confirm your selection by pressing OK.

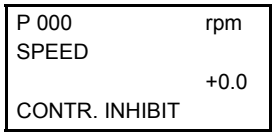
Parameter mode

Proceed as follows to set the parameters in parameter mode:

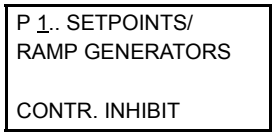
1. Press the context key to activate the context menu. The first menu item is "PARAMETER MODE".



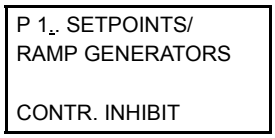
2. Press the OK key to start PARAMETER MODE. The first display parameter P000 "SPEED" appears. Use the ↑ or ↓ key to select main parameter groups 0 to 9.



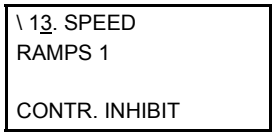
3. Use the ↑ or ↓ key to select desired main parameter group. The flashing cursor is positioned under the number of the main parameter group.



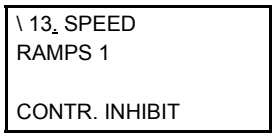
4. Press the OK key to activate parameter subgroup selection in the required main parameter group. The flashing cursor moves one position to the right.



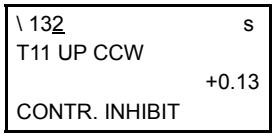
5. Use the ↑ or ↓ key to select desired parameter subgroup. The flashing cursor is positioned under the number of the parameter subgroup.



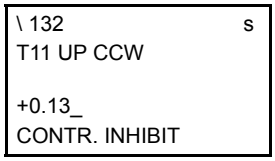
6. Press the OK key to activate parameter selection in the required parameter subgroup. The flashing cursor moves one position to the right.



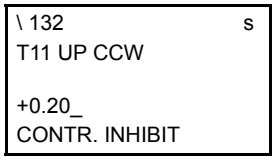
7. Use the ↑ or ↓ key to select the desired parameter. The flashing cursor is positioned under the third digit of the parameter number.



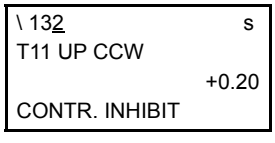
8. Press the OK key to activate the setting mode for the selected parameter. The cursor is positioned under the parameter value.



9. Use the ↑ or ↓ key to set the required parameter value.



10. Press the OK key to confirm the setting. To exit setting mode, press the ↔ key. The flashing cursor is positioned under the third digit of the parameter number again.



11. Use the ↑ or ↓ key to select another parameter, or press the DEL key to switch to the menu of the parameter subgroups.

\ 13. SPEED RAMPS 1 CONTR. INHIBIT

12. Use the ↑ or ↓ key to select another parameter subgroup or press the DEL key to switch to the menu of the main parameter groups.

P 1.. SETPOINTS/ RAMP GENERATORS CONTR. INHIBIT

13. Use the context key to return to the context menu.

PARAMETER MODE VARIABLE MODE BASIC VIEW

User menu

The DBG60B keypad has a standard user menu containing the parameters that are used most often. The parameters in the user menu are displayed with a "\" before the parameter number (→ Sec. "Complete parameter list"). You can add or delete parameters. You can save a maximum of 50 parameter entries. The parameters are displayed in the order in which they are stored in the inverter. The parameters are not sorted automatically.

- Use the context key to call up the context menu. Select the menu item "USER MENU" and press the OK key to confirm. The user menu with the most frequently used parameters appears.

Adding parameters to the user menu

Proceed in this order to add parameters to the user menu:

- Use the context key to call up the context menu. Select the "PARAMETER MODE" menu item.
- Select desired parameter and press the OK key to confirm.
- Use the context key to return to the context menu. In the context menu, select the menu item "ADD Pxxx". "xxx" is the parameter you selected previously. Confirm your selection by pressing OK. The selected parameter is stored in the user menu.

Deleting parameters from the user menu

Proceed in this order to delete parameters from the user menu:

- Use the context key to call up the context menu. Select the menu item "USER MENU".
- Select the parameter that is to be deleted. Confirm your selection by pressing OK.
- Use the context key to return to the context menu. In the context menu, select the menu item "DELETE Pxxx". "xxx" is the parameter you selected previously. Confirm your selection by pressing OK. The selected parameter is deleted from the user menu.

Wake-up parameter

The wake-up parameter is the parameter that is displayed when the DBG60B is switched on. The factory setting for the wake-up parameter is the basic display. You can select which parameter should be the wake-up parameter. The following options can be used as the wake-up parameter:

- Parameter (→ Parameter mode)
- Parameter from the user menu (→ User menu)
- Basic display

Proceed as follows to save a wake-up parameter:

- First select the required parameter in parameter mode.
- In the context menu, select the menu item "XXXX WAKE-UP PARAM.". "XXXX" is the selected wake-up parameter. Confirm your selection by pressing OK.

7 Service

7.1 Unit information

7.1.1 Fault memory

The inverter stores the error message in fault memory P080. The inverter does not save a new fault until the error message has been acknowledged. The local operating panel shows the most recent fault. Whenever double faults occur, the value stored in P080 does not correspond to the value displayed on the operating panel. This is an example of what happens with F-07 DC link overvoltage followed by F34 Ramp timeout.

The inverter stores the following information when a malfunction occurs:

- Error occurred
- Status of the binary inputs / binary outputs
- Operating status of the inverter
- Inverter status
- Heat sink temperature
- Speed
- Output current
- Active current
- Unit utilization
- DC link voltage

7.1.2 Switch-off responses

There are 3 switch-off responses depending on the fault:

Immediate switch off

This fault response causes immediate locking of the output stage with simultaneous control of the brake output so that an existing brake is applied. The "fault message" is set and the "ready message" is revoked.

This status can only be exited by an explicit fault reset.

Stop

This fault response causes a stop at the set stop ramp. This fault stop is subject to time monitoring. If the drive does not reach the start/stop speed within a specified time period, the unit jumps to the fault state, the output stage is inhibited and an existing brake is applied. The fault message "F34 Ramp timeout" is generated. The original fault message is overwritten. If the drive reaches the start/stop speed, the unit jumps to the fault status, the brake is applied and the output stage is inhibited. The "fault message" is set and the "ready message" is revoked.

This status can only be exited by an explicit error reset.

Timeout (warning)

The switch-off response causes a stop at the set rapid stop ramp. The stop is subject to time monitoring as for the "fault stop".

If the drive reaches the start/stop speed, the unit jumps to the warning state, the brake is applied and the output stage is inhibited. The "fault message" is set and the "ready message" remains set.

An explicit fault reset is not possible. The fault is reset when communication is made again or the timeout is set to 0 s.

Behavior of the inverter when it is controlled via a communciation interface (RS-485 or SBus):

- Power off and on
- Enable has no effect
- Valid data to an interface monitored with timeout
- Enable

7.1.3 Reset

Basic unit reset

An error message can be acknowledged by:

- Reset via input terminals with an appropriately assigned binary input (DIØØ, DIØ2...DIØ5). DIØØ is factory set to fault reset.

Keypad reset

An error message can be acknowledged by:

- Manual reset on the keypad (STOP/RESET key).

The "STOP/RESET" button has priority over a terminal enable or an enable via the interface.

The STOP/RESET key can be used for performing a reset after a fault has occurred with a programmed error response. A reset inhibits the drive. To enable the drive, press the RUN key.

Interface reset

An error message can be acknowledged by:

- Manual reset in MOVITOOLS® MotionStudio / *P840 Manual reset* = *Yes*, or in the status window of the reset button.

7.2 List of faults (F-00 ... F-113)

No.	Designation	Response	Possible cause	Measure
00	No fault			
01	Overcurrent	Immediate switch-off with inhibit	• Short circuit at output	• Rectify the short circuit
			• Output switching	• Switching with inhibited output stage only
			• Motor too large	• Connect a smaller motor
			• Faulty output stage	• Consult SEW Service if the fault cannot be reset
03	Ground fault	Immediate switch-off with inhibit	• Ground fault in motor	• Replace motor
			• Ground fault in inverter	• Replace MOVITRAC® B
			• Ground fault in the motor supply lead	• Eliminate ground fault
			• Overcurrent (see F-01)	• See F-01
04	Brake chopper	Immediate switch-off with inhibit	• Too much regenerative power	• Extend deceleration ramps
			• Braking resistor circuit interrupted	• Check supply cable to the braking resistor
			• Short circuit in the braking resistor circuit	• Rectify the short circuit
			• Brake resistor has too high resistance	• Check technical data of braking resistor
			• Brake chopper defective	• Replace MOVITRAC® B
			• Ground fault	• Eliminate ground fault
06	Mains phase failure	Immediate switch-off with inhibit (only with 3-phase inverter)	• Phase failure	• Check the supply system lead
			• Supply voltage too low	• Check the supply voltage
07	DC link overvoltage	Immediate switch-off with inhibit	• DC link voltage too high	• Extend deceleration ramps • Check supply cable to the braking resistor • Check technical data of braking resistor
			• Ground fault	• Eliminate ground fault
08	Speed monitoring	Immediate switch-off with inhibit	Current controller works at the set limit due to:	
			• Mechanical overload	• Reduce load • Check current limitation • Extend deceleration ramps • Increase set deceleration time P501[1)]
			• Phase failure in supply system	• Check mains phases
			• Phase failure in motor	• Check motor cable and motor
			• Maximum speed for VFC operating modes exceeded	• Reduce maximum speed
09	Startup	Immediate switch-off with inhibit	• Inverter not started yet	• Start up the inverter
			• Unknown motor selected	• Select another motor

No.	Designation	Response	Possible cause	Measure
10	IPOS-ILLOP	Stop with inhibit With IPOS only	• Incorrect command during command execution	• Check the program
			• Incorrect conditions during command execution.	• Check program run
			• Function does not exist / is not implemented in the inverter	• Use another function
11	Overtemperature	Stop with inhibit	• Thermal overload of inverter	• Reduce load and / or ensure adequate cooling • If a braking resistor is integrated in the heat sink: Install braking resistor externally
17 ... 24	System error	Immediate switch-off with inhibit	• Inverter electronics is faulty, possibly due to EMC influence	• Check grounding and shielding and improve, if necessary. • Contact SEW Service for advice if this fault reoccurs.
25	EEPROM	Stop with inhibit	• Error while accessing EEPROM	• Activate factory settings, perform reset and reset parameters. • Contact SEW Service for advice if this fault reoccurs.
26	External terminal	Programmable	• Read in external fault signal via programmable input.	• Eliminate specific cause of fault; reprogram terminal if necessary.
31	TF/TH sensor tripped	Stop with inhibit	• Motor too hot, TF sensor has tripped	• Let motor cool off and reset fault
			• TF sensor of motor not connected or connected incorrectly • Connection of MOVITRAC® B and TF on motor interrupted	• Check connections / links between MOVITRAC® B and TF
32	IPOS index overflow	Stop with inhibit	• Programming principles violated leading to internal stack overflow	• Check user program and correct it
34	Ramp timeout	Immediate switch-off with inhibit	• Set ramp time exceeded.	• Extend the ramp time
			• If you remove the inhibit and the drive exceeds the stop ramp time t13 by a certain time, the inverter will signal F34.	• Extend the stop ramp time
36	Option missing	Immediate switch-off with inhibit	• Type of option card not allowed	• Use correct option card
			• Setpoint source, control signal source or operating mode not permitted for this option card	• Set correct setpoint source. • Set correct control signal source . • Set the correct operating mode. • Check parameters P120 and P121
37	System watchdog	Immediate switch-off with inhibit	• Error during system software execution	• Check grounding and shielding and improve, if necessary. • Contact SEW Service for advice if this fault reoccurs.
38	System software	Immediate switch-off with inhibit	• System error	• Check grounding and shielding and improve, if necessary. • Contact SEW Service for advice if this fault reoccurs.
43	RS-485 timeout	Stop without inhibit[2)]	• Connection between inverter and PC interrupted.	• Check connection between inverter and PC.

No.	Designation	Response	Possible cause	Measure
44	Unit utilization	Immediate switch-off with inhibit	• Unit utilization (Ixt value) exceeded	• Decrease power output • Extend ramps • If these points are not possible: Use a larger inverter
45	Initialization	Immediate switch-off with inhibit	• Error during initialization	• Contact SEW Service for advice.
47	System bus 1 timeout	Stop without inhibit	• Error during communication via system bus	• Check system bus connection
77	IPOS control word	Stop with inhibit	• System error	• Contact SEW Service for advice.
80	RAM test	Immediate switch-off	Internal unit fault, RAM defective.	Contact SEW Service.
81	Start condition	Immediate switch-off with inhibit	**Only in "VFC hoist" operating mode:** The motor could not be supplied with the correct amount of current during the pre-magnetizing time:	
			• Rated motor power too small in relation to rated inverter power	• Check connection between inverter and motor • Check startup data and perform new startup, if necessary.
			• Motor cable cross section too small	• Check cross section of motor cable and increase if necessary.
82	Open output	Immediate switch-off with inhibit	**Only in "VFC hoist" operating mode:**	
			• 2 or all output phases interrupted	• Check connection between inverter and motor
			• Rated motor power too small in relation to rated inverter power	• Check startup data and perform new startup, if necessary.
84	Motor protection	Stop with inhibit	• Motor utilization too high.	• Check P345/346 I_NUL monitoring • Reduce load • Extend ramps • Longer pause times
94	EEPROM checksum	Immediate switch-off with inhibit	• EEPROM defective	• Contact SEW Service.
97	Copy error	Immediate switch-off with inhibit	• Parameter module is removed during copying process • Switching off/on while copying	Before acknowleding the fault: • Load factory setting or complete data set from parameter module
98	CRC error flash	Immediate switch-off	Internal unit fault Flash memory defective.	Send unit in for repair.
100	Vibration/ warning	Display fault	Vibration sensor warns (→ "DUV10A" operating instructions)	Determine cause of vibrations. Continue operation until F101 occurs.
101	Vibration fault	Rapid stop	Vibration sensor reports fault	SEW-EURODRIVE recommends that you remedy the cause of the vibrations immediately
102	Oil aging/ warning	Display fault	Oil aging sensor warns	Schedule oil change.
103	Oil aging/fault	Display fault	Oil aging sensor reports fault	SEW-EURODRIVE recommends that you change the gear unit oil immediately.

No.	Designation	Response	Possible cause	Measure
104	Oil aging/over-temperature	Display fault	Oil aging sensor signals overtem-perature	• Let oil cool down • Check if the gear unit cools properly
105	Oil aging / ready signal	Display fault	Oil aging sensor is not ready for operation	• Check voltage supply of oil aging sensor • Check and, if necessary, replace the oil aging sensor
106	Brake wear	Display fault	Brake lining worn	Replace brake lining (→ "Motors" operating instructions)
110	"Ex-e protec-tion" fault	Stop with inhibit	Duration of operation below 5 Hz exceeded	• Check project planning • Shorten duration of operation below 5 Hz
113	Analog input open circuit	Programmable	AI1 analog input open circuit	• Check wiring

1) Speed monitoring is set by changing parameters 500 / 502 and 501 / 503. The sagging of hoists cannot be avoided safely when monitoring is deactivated or the delay time is set too long.

2) No reset required, error message disappears after communication is reestablished

7.3 SEW Electronics Service

7.3.1 Hotline

Call the Drive Service Hotline to talk to an SEW-EURODRIVE service specialist on 365 days a year, 24 hours a day.

Simply dial the prefix **01805** and then enter the key combination **SEWHELP**. Or simply dial **018057394357**.

7.3.2 Sending unit in for repair

Please contact the **SEW Electronics Service if you cannot rectify a fault**.

Please always specify the unit status code number when you contact the SEW electronics service so that our service personnel can assist you more effectively.

Please provide the following information when sending the unit in for repair:
Serial number (→ nameplate)
Unit designation
Short description of application (application, control via terminals or serial)
Connected motor (motor voltage, star or delta connection)
Nature of the fault
Accompanying circumstances
Your own presumptions as to what has happened
Unusual events preceding the problem

7.4 Extended storage

If the unit is being stored for a long time, connect it to the mains voltage for at least 5 minutes every 2 years. Otherwise, the unit's service life may be reduced.

Procedure when maintenance has been neglected:

Electrolytic capacitors are used in the inverters. They are subject to aging effects when deenergized. This effect can damage the electrolytic capacitors if the unit is connected using the rated voltage after a longer period of storage.

If you have not performed maintenance regularly, SEW-EURODRIVE recommends that you increase the supply voltage slowly up to the maximum voltage. This can be done, for example, by using a variable transformer for which the output voltage has been set according to the following overview. SEW-EURODRIVE recommends that you increase the voltage from 0 V to the first stage after a few seconds.

SEW-EURODRIVE recommends the following stages:

AC 400/500 V units:

- Stage 1: AC 350 V for 15 minutes
- Stage 2: AC 420 V for 15 minutes
- Stage 3: AC 500 V for 1 hour

AC 230 V units:

- Stage 1: AC 170 V for 15 minutes
- Stage 2: AC 200 V for 15 minutes
- Stage 3: AC 240 V for 1 hour

After you have completed the regeneration process, the unit can be used immediately or stored again for an extended period with maintenance.

8 Technical Data

8.1 CE marking, UL approval and C-Tick

8.1.1 CE-marking

MOVITRAC® B frequency inverters comply with the regulations of the Low Voltage Directive 73/23/EEC.

MOVITRAC® B frequency inverters are designed for use as components for installation in machines and systems. They comply with the EMC product standard EN 61800-3 *Variable-speed electrical drives.* Provided the installation instructions are complied with, they satisfy the relevant requirements for the CE marking for the entire machine / system in which they are installed, on the basis of the EMC Directive 89/336/EMC. For detailed information on EMC compliant installation, refer to the publication "Electromagnetic Compatibility in Drive Engineering" from SEW-EURODRIVE.

Compliance with limit classes C2 and C1 has been tested on a specified test setup. SEW-EURODRIVE can provide detailed information on request.

The CE-mark on the nameplate indicates conformity with the low voltage directive 73/23/EEC. We can provide a declaration of conformity on request.

8.1.2 UL approval / CSA / GOST-R certificate / C-Tick

UL and cUL approval (USA) has been granted for the following MOVITRAC® B units:

- 230 V / 1-phase
- 230 V / 3-phase
- 400/500 V / 3-phase (0.25 ... 45 kW / 0.34 ... 60 hp)

cUL approval has been applied for the other units. cUL is equivalent to CSA approval.

The GOST-R certificate (Russia) is approved for the MOVITRAC® B unit series.

C-Tick approval has been granted for the entire MOVITRAC® B series. C-Tick certifies conformity with ACMA (Australian Communications and Media Authority) standards.

8.2 General technical data

The following technical data applies to all MOVITRAC® B frequency inverters independent of size and power.

MOVITRAC® B	All sizes
Interference immunity	Meets EN 61800-3
Interference emission with EMC-compliant installation	According to limit value class[1)] • Sizes 0 ... 2: C2 without further measures • Sizes 0 ... 5: C1 with corresponding filters / folding ferrites C1/C2 to EN 61800-3
Leakage current	> 3.5 mA
Ambient temperature ϑ_A (up to 60 °C (140 °F) with current reduction)	• **230 V, 0.25 ... 2.2 kW (0.34 ... 3.0 HP) / 400/500 V, 0.25 ... 4.0 kW (0.34 ... 5.4 HP)** **With overload capacity** (max. 150% for 60 s): I_D = 100 % I_N / f_{PWM} = 4 kHz: –10 °C ... +40 °C (14 °F ... 104 °F) **Without high overload capacity:** I_D = 100 % I_N / f_{PWM} = 4 kHz: –10 °C ... +50 °C (14 °F ... 122 °F) I_D = 100 % I_N / f_{PWM} = 8 kHz: –10 °C ... +40 °C (14 °F ... 104 °F) I_D = 125 % I_N / f_{PWM} = 4 kHz: –10 °C ... +40 °C (14 °F ... 104 °F) • **3 × 230 V, 3.7 ... 30 kW (5.0 ... 40 HP) / 400/500 V, 5.5 ... 75 kW (7.4 ... 100 HP)** **With overload capacity** (max. 150% for 60 s): I_D = 100 % I_N / f_{PWM} = 4 kHz: 0 °C ... +40 °C (32 °F ... 104 °F) **Without high overload capacity:** I_D = 100 % I_N / f_{PWM} = 4 kHz: 0 °C ... +50 °C (32 °F ... 122 °F) I_D = 100 % I_N / f_{PWM} = 8 kHz: 0 °C ... +40 °C (32 °F ... 104 °F) I_D = 125 % I_N / f_{PWM} = 4 kHz: 0 °C ... +40 °C (32 °F ... 104 °F) • Mounting plate with **"cold plate"** < 70°C (+158 °F)
Derating ambient temperature (current reduction)	2.5 % I_N per K at 40 °C ... 50 °C (104 °F ... 122 °F) 3 % I_N per K at 50 °C ... 60 °C (122 °F ... 140 °F)
Climate class	EN 60721-3-3, class 3K3
Storage temperature Transportation temperature	–25 °C ... +75 °C (–13 °F ... 167 °F) –25 °C ... +75 °C (–13 °F ... 167 °F)
Cooling type	Self-cooling: 230 V: ≤ 0.75 kW (1.0 HP); 400/500 V: ≤ 1.1 kW (1.5 HP) Forced cooling: 230 V: ≥ 1.1 kW (1.5 HP) (temperature-controlled fans, Response threshold 45 °C (113 °F]): 400/500 V: ≥ 1.5 kW (3.0 HP)
Degree of protection EN 60529 (NEMA1)	Sizes 0 ... 3: IP20 Sizes 4 ... 5 power connections: • IP00 • With the supplied Plexiglas cover mounted and mounted shrinking tube (not supplied) IP10
Duty type	Continuous duty
Overvoltage category	III according to IEC 60664-1 (VDE 0110-1)
Mains voltage tolerance	EN 50160: ±10 %
Pollution class	2 according to IEC 60664-1 (VDE 0110-1)

MOVITRAC® B	All sizes
Installation altitude	Up to h ≤ 1000 m (3281 ft) without restrictions. At h ≥ 1000 m (3281 ft), the following restrictions apply: • from 1000 m (3281 ft) to max. 4000 m (13120 ft): – I_N reduction by 1% per 100 m (328 ft) • from 2000 m (6562 ft) to max. 4000 m (13120 ft): – AC 230 V units: Reduction of the rated mains voltage V_{supply} by AC 3 V per 100 m (328 ft) – AC 500 V units: Reduction of the rated mains voltage V_{supply} by AC 6 V per 100 m (328 ft) Over 200 m (6562 ft) only overvoltage class 2, external measures are required for overvoltage class 3. Overvoltage classes according to DIN VDE 0110-1.
Dimensioning	According to DIN ISO 276-v
Size 0: Restrictions for continuous duty with 125 % I_N	• Maximum ambient temperature ϑ_A: 40 °C (104 °F) • Maximum rated mains voltage V_{supply}: 400 V • No DIN rail mounting / submounting resistor • With 1 × 230 V: Provide line choke ND

1) Electrical installation in compliance with applicable regulations is necessary for maintaining the EMC limit value class. Comply with the installation notes.

8.3 MOVITRAC® B electronics data

Function	Terminal	Designation	Default	Data
Setpoint input[1] (differential input)	X10:1 X10:2 X10:3 X10:4	REF1 AI11 (+) AI12 (–) GND		+10 V, R_{Lmin} = 3 kΩ 0 ... +10 V (R_i > 200 kΩ) 0 ... 20 mA / 4 ... 20 mA (R_i = 250 Ω), 10 bit resolution, sampling time 1 ms GND = Reference potential for binary and analog signals, PE potential
Binary inputs	X12:1 X12:2 X12:3 X12:4 X12:5 X12.6	DI00 DI01 DI02 DI03 DI04 DI05TF	Fault reset CW/stop CCW/stop Enable/stop n11/n21 n12/n22	R_i = 3 kΩ, I_E = 10 mA, sampling time 5 ms, PLC-compatible Signal level according to EN 61131-2 type 1 or 3: • +11 ... +30 V → 1 / contact made • –3 ... +5 V → 0 / contact open • X12:2 / DI01 with fixed assignment CW/Stop • X12:5 / DI04 can be used as frequency input • X12:6 / DI05 can be used as TF input
Supply voltage for TF	X12:7	VOTF		Special characteristics for TF according to DIN EN 60947-8 / trigger value 3 kΩ
Auxiliary voltage output / external voltage supply[2]	X12:8	24VIO		Auxiliary voltage output: V = DC 24 V, current carrying capacity I_{max} = 50 mA External voltage supply: V = DC 24 V –15 % / +20 % to EN 61131-2 See section Project planning/external DC 24 V voltage supply.
Reference terminal	X12:9	GND		Reference potential for binary and analog signals, PE potential
Binary outputs	X13:1 X13:2 X13:3 X13:4	GND DO02 DO03 GND	 Brake released Ready	PLC compatible, response time 5 ms, I_{max} DO02 = 150 mA, I_{max} DO03 = 50 mA, Short-circuit proof, protected against external voltage up to 30 V GND = Reference potential for binary and analog signals, PE potential
Relay output	X13:5 X13:6 X13:7	DO01-C DO01-NO DO01-NC		Shared relay contact NO contact NC contact Load capacity: V_{max} = 30 V, I_{max} = 800 mA

Function	Terminal	Designation	Default	Data
Safety contact	X17:1	DGND: Reference potential for X17:3		
	X17:2	VO24: : V_{OUT} = DC 24 V, only to supply X17:4 of the same unit; **it cannot be used** to supply other units.		
	X17:3	SOV24: Reference potential for DC+24 V input "Safe stop" (safety contact)		
	X17:4	SVI24: DC+24 V input "Safe stop" (safety contact)		
	Permitted cable cross section			One core per terminal: 0.08...1.5 mm^2 (AWG 28...16) Two cores per terminal: 0.25 ... 1.0 mm^2 (AWG 23...17)
	Power consumption X17:4			Size 0: 3 W Size 1: 5 W Size 2, 2S: 6 W Size 3: 7.5 W Size 4: 8 W Size 5: 10 W
	Input capacitance X17:4			Size 0: 27 µF Sizes 1...5: 270 µF
	Time for restart Time to inhibit output stage			t_A = 200 ms t_S = 200 ms
	Signal level			DC +19.2 V...+30 V= "1" = Contact closed DC –30 V...+5 V= "0" = Contact open
Terminal response times	Binary input and output terminals are updated every 5 ms			
Max. cable cross-section	1.5 mm^2 (AWG15) without conductor end sleeves 1.0 mm^2 (AWG17) with conductor end sleeves			

1) If the setpoint input is not used, it should be set to GND. Otherwise a measured input voltage of –1 V ... +1 V is set.

2) The MC07B...-S0 unit type must always be supplied with external voltage.

8.3.1 DC 24 V power demand for 24 V backup mode

Size	Basic unit power demand[1)]	DBG60B	FIO11B	Fieldbus option[2)3)]	DHP11B[3)]
0 MC07B...-00	5 W	1 W	2 W	3 W	4.5 W
0 MC07B...-S0	12 W				
1, 2S, 2	17 W				
3	23 W				
4, 5	25 W				

1) FBG11B, FSC11B (UWS11A/USB11A) included Take account of the additional load of the binary inputs with 2.4 W per 100 mA.

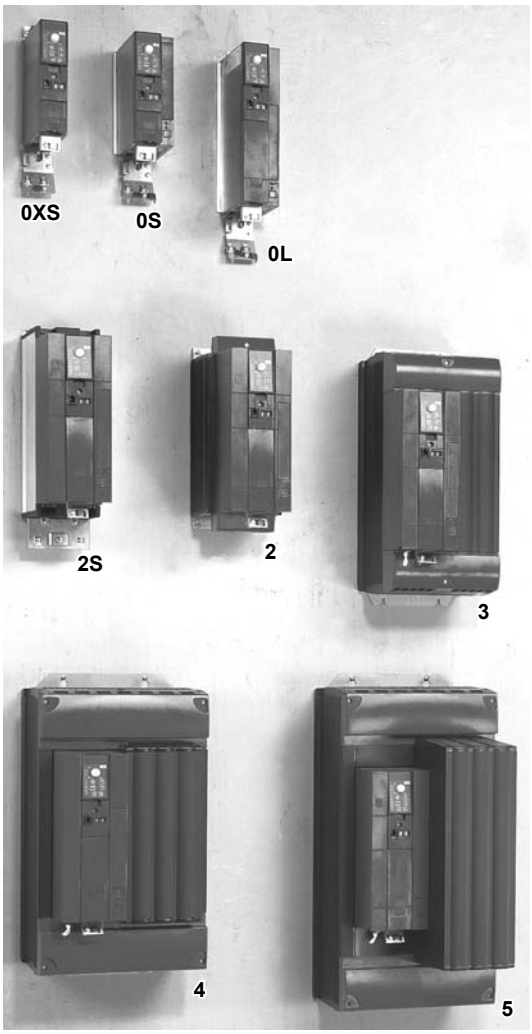
2) Fieldbus options are: DFP21B, DFD11B, DFE11B, ...

3) These options must always be externally supplied.

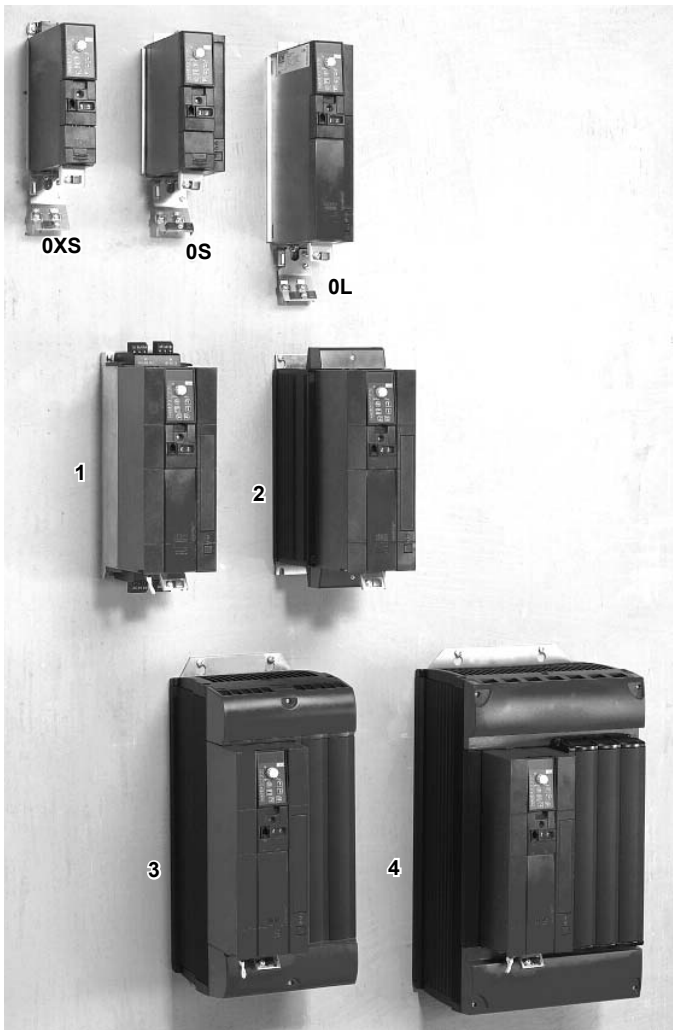
8.4 Technical data of MOVITRAC® 07B

8.4.1 Overview MOVITRAC® B

400 / 500 V



230 V

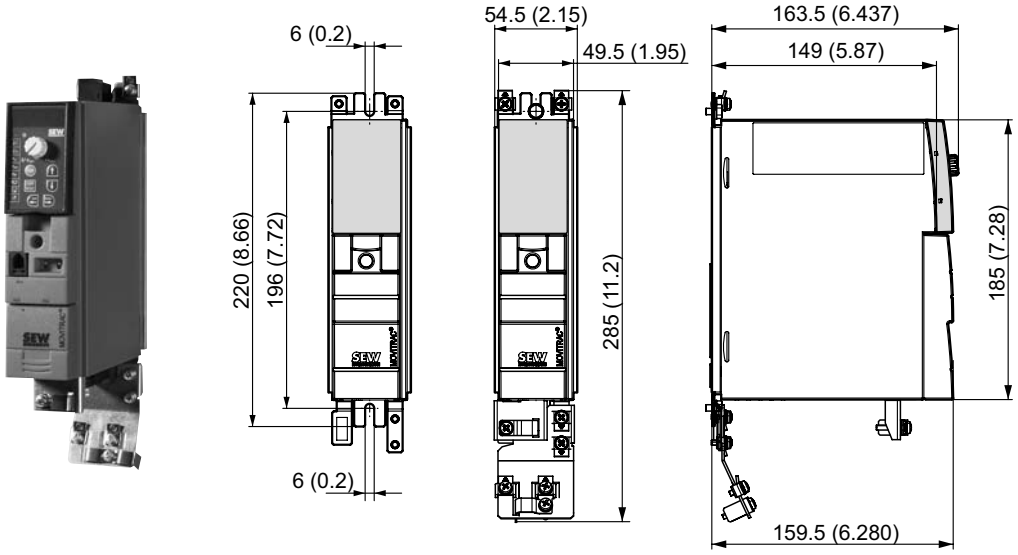


Power supply connection 400 / 500 V / 3-phase								
Size	**0XS**	**0S**	**0L**	**2S**	**2**	**3**	**4**	**5**
Power [kW / HP]	0.25 / 0.34 0.37 / 0.50	0.55 / 0.74 0.75 / 1.0 1.1 / 1.5 1.5 / 2.0	2.2 / 3.0 3.0 / 4.0 4.0 / 5.4	5.5 / 7.4 7.5 / 10	11 / 15	15 / 20 22 / 30 30 / 40	37 / 50 45 / 60	55 / 74 75 / 100

Power supply connection 230 V / 1-phase			
Size	**0XS**	**0S**	**0L**
Power [kW / HP]	0.25 / 0.34 0.37 / 0.50	0.55 / 0.74 0.75 / 1.0	1.1 / 1.5 1.5 / 2.0 2.2 / 3.0

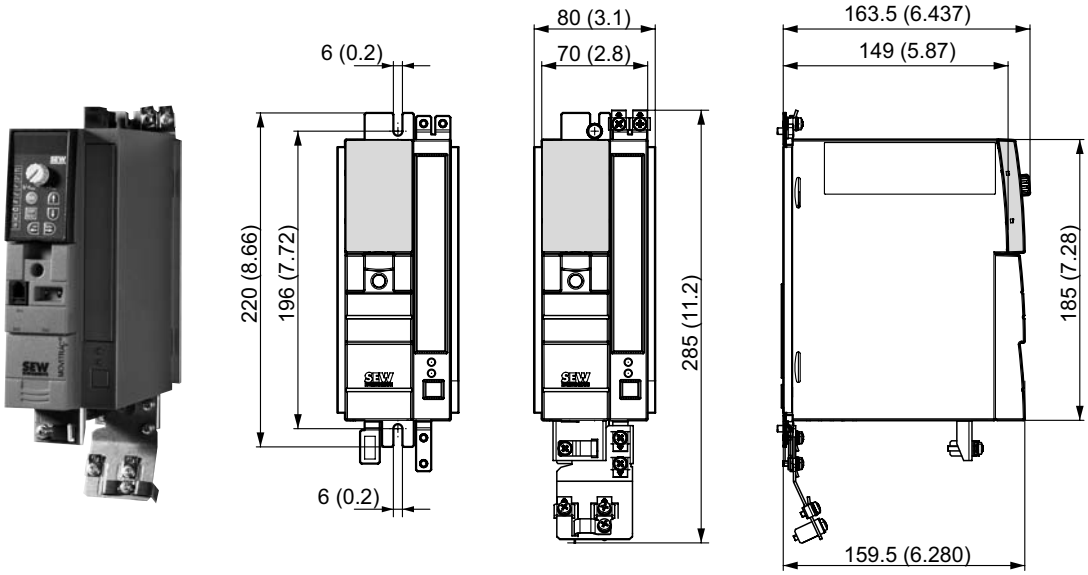
Power supply connection 230 V / 3-phase							
Size	**0XS**	**0S**	**0L**	**1**	**2**	**3**	**4**
Power [kW / HP]	0.25 / 0.34 0.37 / 0.50	0.55 / 0.74 0.75 / 1.0	1.1 / 1.5 1.5 / 2.0 2.2 / 3.0	3.7 / 5.0	5.5 / 7.4 7.5 / 10	11 / 15 15 / 20	22 / 30 30 / 40

8.4.2 AC 400 / 500 V / 3-phase / size 0XS / 0.25 ... 0,37 kW / 0,34 ... 0.50 HP



MOVITRAC® MC07BB (3-phase supply system) Part number		0003-5A3-4-00 828 515 2	0004-5A3-4-00 828 516 0
INPUT			
Rated supply voltage	V_{supply}	3 × AC 380 ... 500 V	
Rated frequency	f_{supply}	50 / 60 Hz ± 5 %	
Rated mains current, 100% operation Rated mains current, 125% operation	I_{supply} $I_{supply\ 125}$	AC 0.9 A AC 1.1 A	AC 1.4 A AC 1.8 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100% operation Recommended motor power 125% operation	P_{Mot} $P_{Mot\ 125}$	0.25 kW / 0.34 HP 0.37 kW / 0.50 HP	0.37 kW / 0.50 HP 0.55 kW / 0.74 HP
Rated output current 100% operation Rated output current 125% operation	I_N $I_{N\ 125}$	AC 1.0 A AC 1.3 A	AC 1.6 A AC 2.0 A
Apparent output power 100% operation Apparent output power 125% operation	S_N $S_{N\ 125}$	0.7 kVA 0.9 kVA	1.1 kVA 1.4 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	68 Ω	
GENERAL INFORMATION			
Power loss 100% operation Power loss 125 % operation	P_V $P_{V\ 125}$	30 W 35 W	35 W 40 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 0.5 Nm / 4 lb in	
Dimensions	W × H × D	54.5 × 185 × 163.5 mm / 2.15 × 7.28 × 6.437 in	
Mass	m	1.3 kg / 2.9 lb	

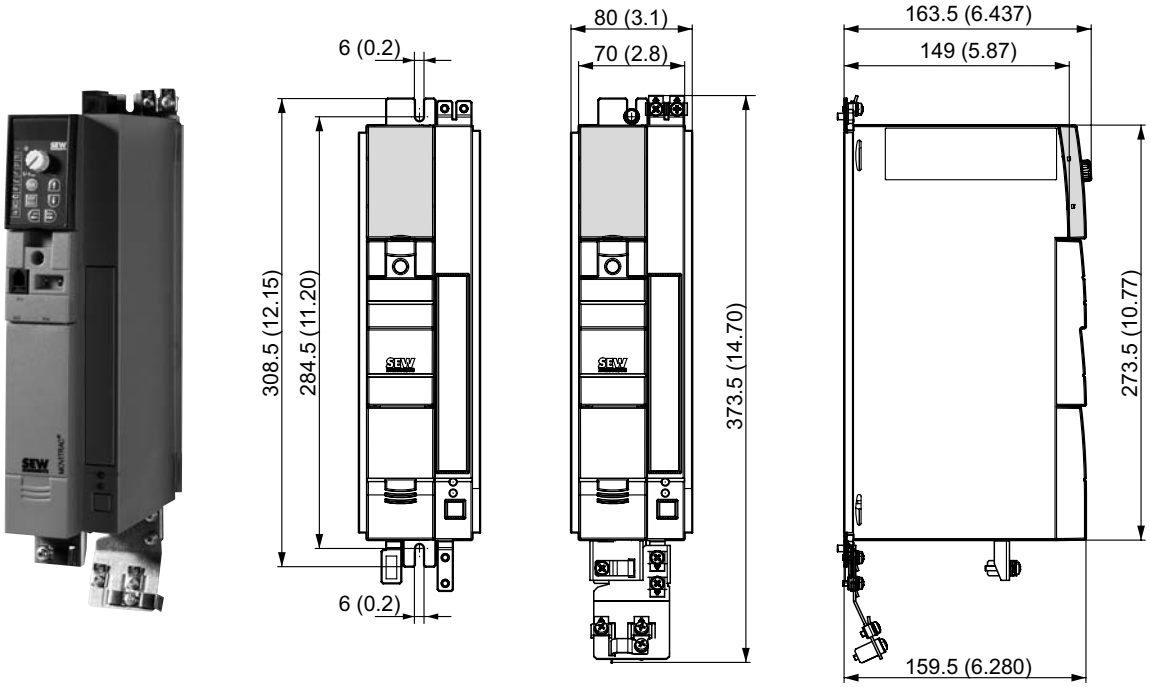
8.4.3 AC 400 / 500 V / 3-phase / size 0S / 0.55 ... 1.5 kW / 0.74 ... 2.0 HP



MOVITRAC® MC07B (3-phase supply system)		**0005-5A3-4-x0**	**0008-5A3-4-x0**	**0011-5A3-4-x0**	**0015-5A3-4-x0**
Part number, standard unit (-00) **Part number "Safe stop" (-S0)[1])**		**828 517 9** **828 995 6**	**828 518 7** **828 996 4**	**828 519 5** **828 997 2**	**828 520 9** **828 998 0**
INPUT					
Rated supply voltage	V_{supply}	3 × AC 380 ... 500 V			
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5 %			
Rated mains current, 100 % operation Rated mains current, 125% operation	I_{supply} $I_{supply\ 125}$	AC 1.8 A AC 2.3 A	AC 2.2 A AC 2.6 A	AC 2.8 A AC 3.5 A	AC 3.6 A AC 4.5 A
OUTPUT					
Output voltage	U_A	3 × 0 ... V_{supply}			
Recommended motor power 100 % operation Recommended motor power 125% operation	P_{Mot} $P_{Mot\ 125}$	0.55 kW / 0.74 HP 0.75 kW / 1.0 HP	0.75 kW / 1.0 HP 1.1 kW / 1.5 HP	1.1 kW / 1.5 HP 1.5 kW / 2.0 HP	1.5 kW / 2.0 HP 2.2 kW / 3.0 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 2.0 A AC 2.5 A	AC 2.4 A AC 3.0 A	AC 3.1 A AC 3.9 A	AC 4.0 A AC 5.0 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	1.4 kVA 1.7 kVA	1.7 kVA 2.1 kVA	2.1 kVA 2.7 kVA	2.8 kVA 3.5 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	68 Ω			
GENERAL INFORMATION					
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	40 W 45 W	45 W 50 W	50 W 60 W	60 W 75 W
Current limitation		150 % I_N for at least 60 seconds			
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 0.5 Nm / 4 lb in			
Dimensions	W × H × D	80 × 185 × 163.5 mm / 3.1 × 7.28 × 6.437 in			
Mass	m	1.5 kg / 3.3 lb			

1) The MC07B...-S0 unit type must always be supplied with external voltage.

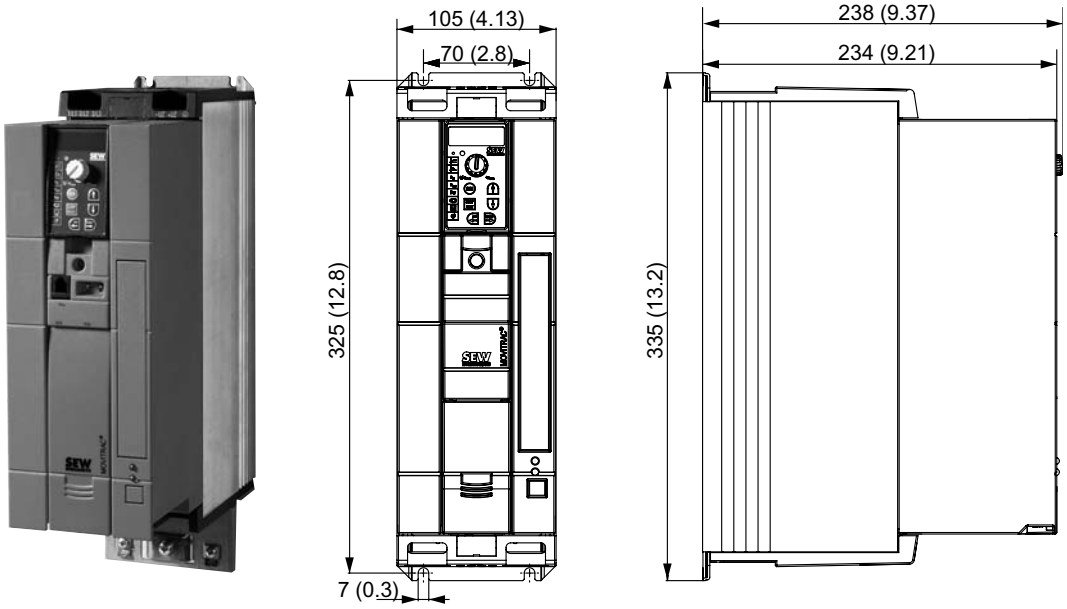
8.4.4 AC 400 / 500 V / 3-phase / size 0L / 2.2 ... 4.0 kW / 3.0 ... 5.4 HP



MOVITRAC® MC07B (3-phase supply system)		0022-5A3-4-x0	0030-5A3-4-x0	0040-5A3-4-x0
Part number, standard unit (-00) **Part number "Safe stop" (-S0)[1)]**		**828 521 7** **828 999 9**	**828 522 5** **829 000 8**	**828 523 3** **829 001 6**
INPUT				
Rated supply voltage	V_{supply}	3 × AC 380 ... 500 V		
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5%		
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 5.0 A AC 6.2 A	AC 6.3 A AC 7.9 A	AC 8.6 A AC 10.7 A
OUTPUT				
Output voltage	U_A	3 × 0 ... V_{supply}		
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	2.2 kW / 3.0 HP 3.0 kW / 4.0 HP	3.0 kW / 4.0 HP 4.0 kW / 5.4 HP	4.0 kW / 5.4 HP 5.5 kW / 7.4 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 5.5 A AC 6.9 A	AC 7.0 A AC 8.8 A	AC 9.5 A AC 11.9 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	3.8 kVA 4.8 kVA	4.8 kVA 6.1 kVA	6.6 kVA 8.2 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	68 Ω		
GENERAL INFORMATION				
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	80 W 95 W	95 W 120 W	125 W 180 W
Current limitation		150 % I_N for at least 60 seconds		
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 0.5 Nm / 4 lb in		
Dimensions	W × H × D	80 × 273.5 × 163.5 mm / 3.1 × 10.77 × 6.437 in		
Mass	m	2.1 kg / 4.6 lb		

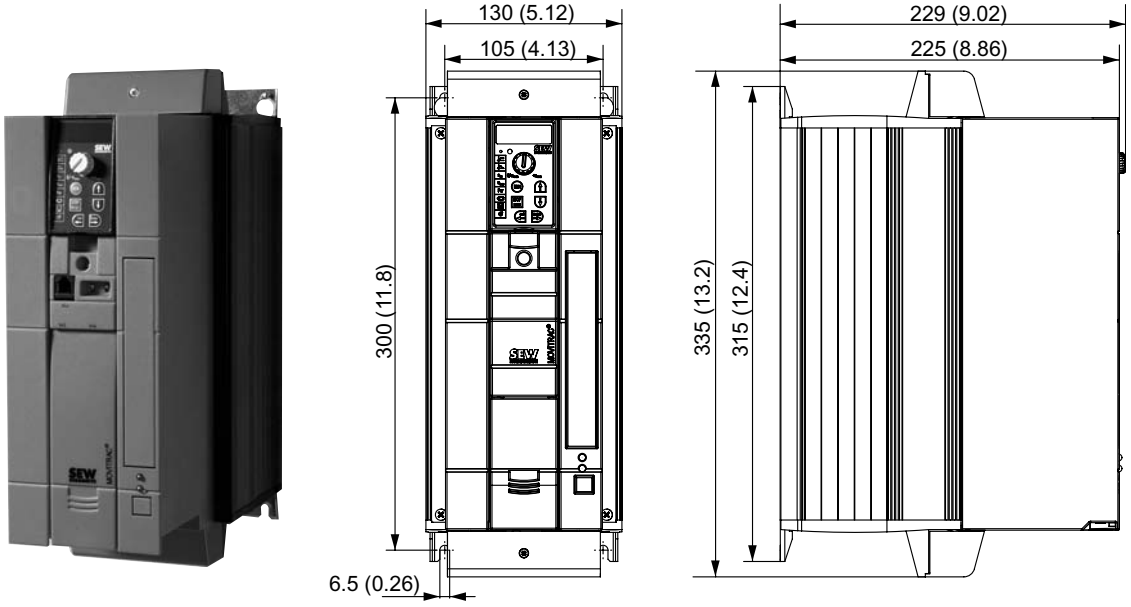
1) The MC07B...-S0 unit type must always be supplied with external voltage.

8.4.5 AC 400 / 500 V / 3-phase / size 2S / 5.5 ... 7.5 kW / 7.4 ... 10 HP



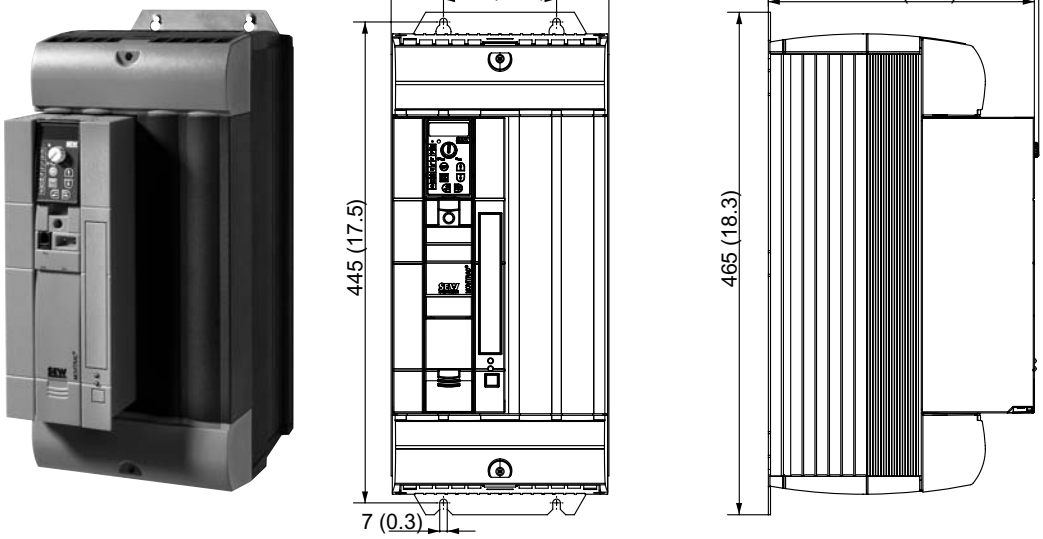
MOVITRAC® MC07B (3-phase supply system) Part number		0055-5A3-4-00 828 524 1	0075-5A3-4-00 828 526 8
INPUT			
Rated supply voltage	V_{supply}	3 × AC 380 ... 500 V	
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5%	
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 11.3 A AC 14.1 A	AC 14.4 A AC 18.0 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	5.5 kW / 7.4 HP 7.5 kW / 10 HP	7.5 kW / 10 HP 11 kW / 15 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 12.5 A AC 15.6 A	AC 16 A AC 20 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	8.7 kVA 10.8 kVA	11.1 kVA 13.9 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	47 Ω	
GENERAL INFORMATION			
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	220 W 290 W	290 W 370 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 1.5 Nm / 13 lb in	
Dimensions	W × H × D	105 × 335 × 238 mm / 4.13 × 13.2 × 9.37 in	
Mass	m	5.0 kg / 11 lb	

8.4.6 AC 400 / 500 V / 3-phase / size 2 / 11 kW / 15 HP



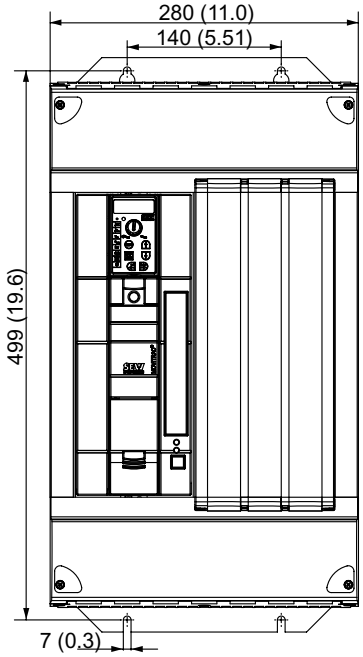
MOVITRAC® MC07B (3-phase supply system) Part number		0110-5A3-4-00 828 527 6
INPUT		
Rated supply voltage	V_{supply}	3 × AC 380 ... 500 V
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5%
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 21.6 A AC 27.0 A
OUTPUT		
Output voltage	U_A	3 × 0 ... V_{supply}
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	11 kW / 15 HP 15 kW / 20 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 24 A AC 30 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	16.6 kVA 20.8 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	22 Ω
GENERAL INFORMATION		
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	400 W 500 W
Current limitation		150 % I_N for at least 60 seconds
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 1.5 Nm / 13 lb in
Dimensions	W × H × D	130 × 335 × 229 mm / 5.12 × 13.2 × 9.02 in
Mass	m	6.6 kg / 15 lb

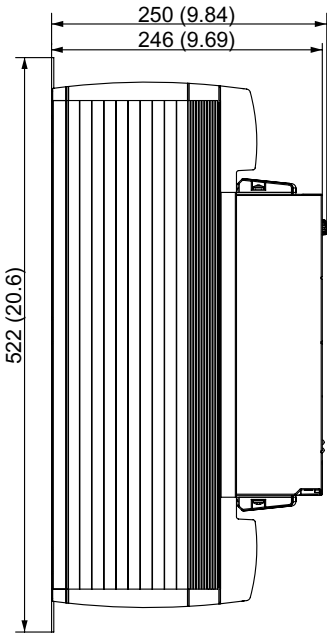
8.4.7 AC 400 / 500 V / 3-phase / size 3 / 15 ... 30 kW / 20 ... 40 HP



MOVITRAC® MC07B (3-phase supply system) Part number		0150-503-4-00 828 528 4	0220-503-4-00 828 529 2	0300-503-4-00 828 530 6
INPUT				
Rated supply voltage	V_{supply}	3 × AC 380 ... 500 V		
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5 %		
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 28.8 A AC 36.0 A	AC 41.4 A AC 51.7 A	AC 54.0 A AC 67.5 A
OUTPUT				
Output voltage	U_A	3 × 0 ... V_{supply}		
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	15 kW / 20 HP 22 kW / 30 HP	22 kW / 30 HP 30 kW / 40 HP	30 kW / 40 HP 37 kW / 50 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 32 A AC 40 A	AC 46 A AC 57.5 A	AC 60 A AC 75 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	22.2 kVA 27.7 kVA	31.9 kVA 39.8 kVA	41.6 kVA 52.0 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	15 Ω		12 Ω
GENERAL INFORMATION				
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	550 W 690 W	750 W 940 W	950 W 1250 W
Current limitation		150 % I_N for at least 60 seconds		
Terminal cross section / tightening torque	Terminals	6 mm^2 / AWG10	10 mm^2 / AWG8	16 mm^2 / AWG6
		3.5 Nm / 31 lb in		
Dimensions	W × H × D	200 × 465 × 251 mm / 7.87 × 18.3 × 9.88 in		
Mass	m	15 kg / 33 lb		

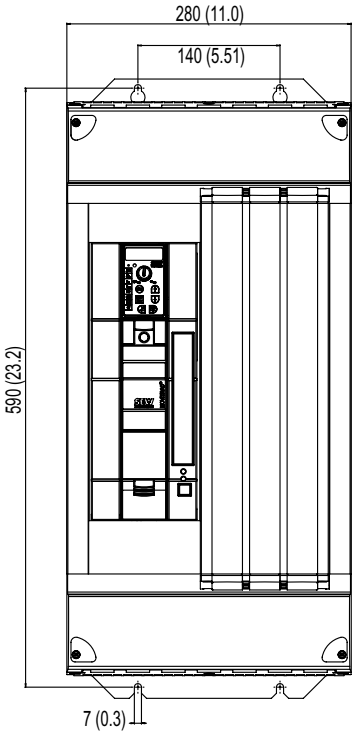
8.4.8 AC 400 / 500 V / 3-phase / size 4 / 37 ... 45 kW / 50 ... 60 HP

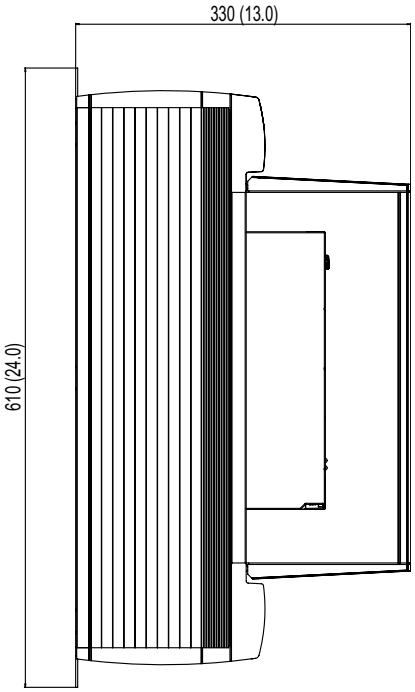




MOVITRAC® MC07B (3-phase supply system) **Part number**		**0370-503-4-00** **828 531 4**	**0450-503-4-00** **828 532 2**
INPUT			
Rated supply voltage	V_{supply}	3 × AC 380 ... 500 V	
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5%	
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 65.7 A AC 81.9 A	AC 80.1 A AC 100.1 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	37 kW / 50 HP 45 kW / 60 HP	45 kW / 60 HP 55 kW / 74 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 73 A AC 91.3 A	AC 89 A AC 111.3 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	50.6 kVA 63.2 kVA	61.7 kVA 77.1 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	6 Ω	
GENERAL INFORMATION			
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	1200 W 1450 W	1400 W 1820 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	25 mm^2 / AWG4	35 mm^2 / AWG2
		14 Nm / 120 lb in	
Dimensions	W × H × D	280 × 522 × 250 mm / 11.0 × 20.6 × 9.84 in	
Mass	m	27 kg / 60 lb	

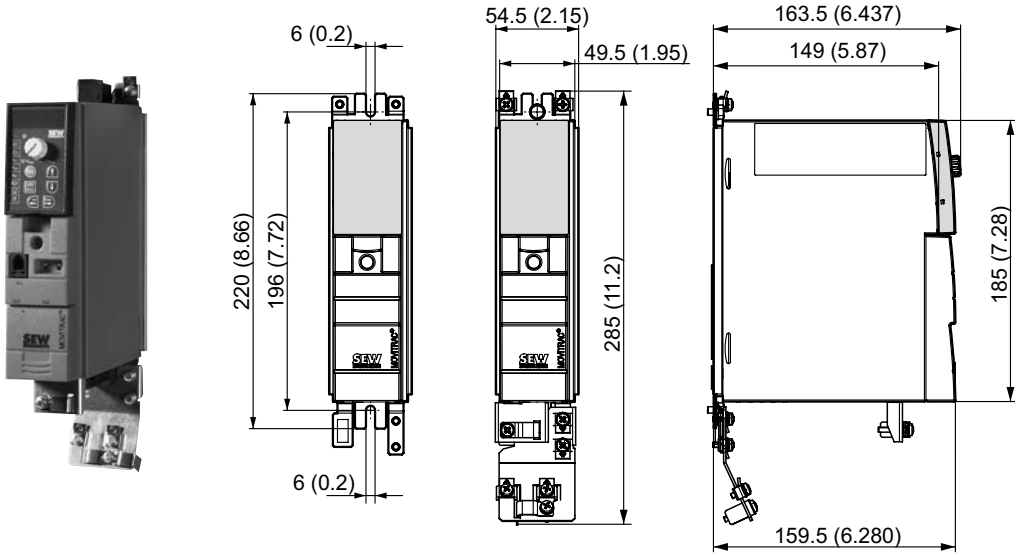
8.4.9 AC 400 / 500 V / 3-phase / size 5 / 55 ... 75 kW / 74 ... 100 HP





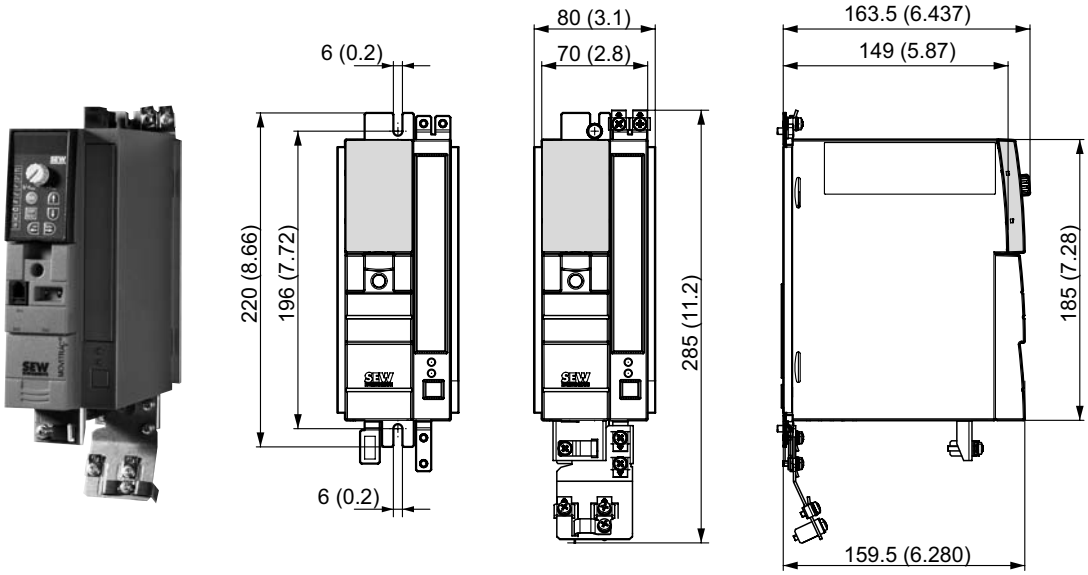
MOVITRAC® MC07B (3-phase supply system) Part number		0550-503-4-00 829 527 1	0750-503-4-00 829 529 8
INPUT			
Rated supply voltage	V_{supply}	3 × AC 380 ... 500 V	
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5 %	
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 94.5 A AC 118.1 A	AC 117 A AC 146.3 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	55 kW / 74 HP 75 kW / 100 HP	75 kW / 100 HP 90 kW / 120 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 105 A AC131 A	AC 130 A AC 162 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	73.5 kVA 90.8 kVA	91.0 kVA 112.2 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	6 Ω	4 Ω
GENERAL INFORMATION			
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	1700 W 2020 W	2000 W 2300 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	35 mm^2 / AWG2	50 mm^2 / AWG0
		14 Nm / 120 lb in	
Dimensions	W × H × D	280 × 610 × 330 mm / 11.0 × 24.0 × 13.0 in	
Mass	m	35 kg / 77 lb	

8.4.10 AC 230 V / 1-phase / size 0XS / 0.25 ... 0.37 kW / 0.34 ... 0.50 HP



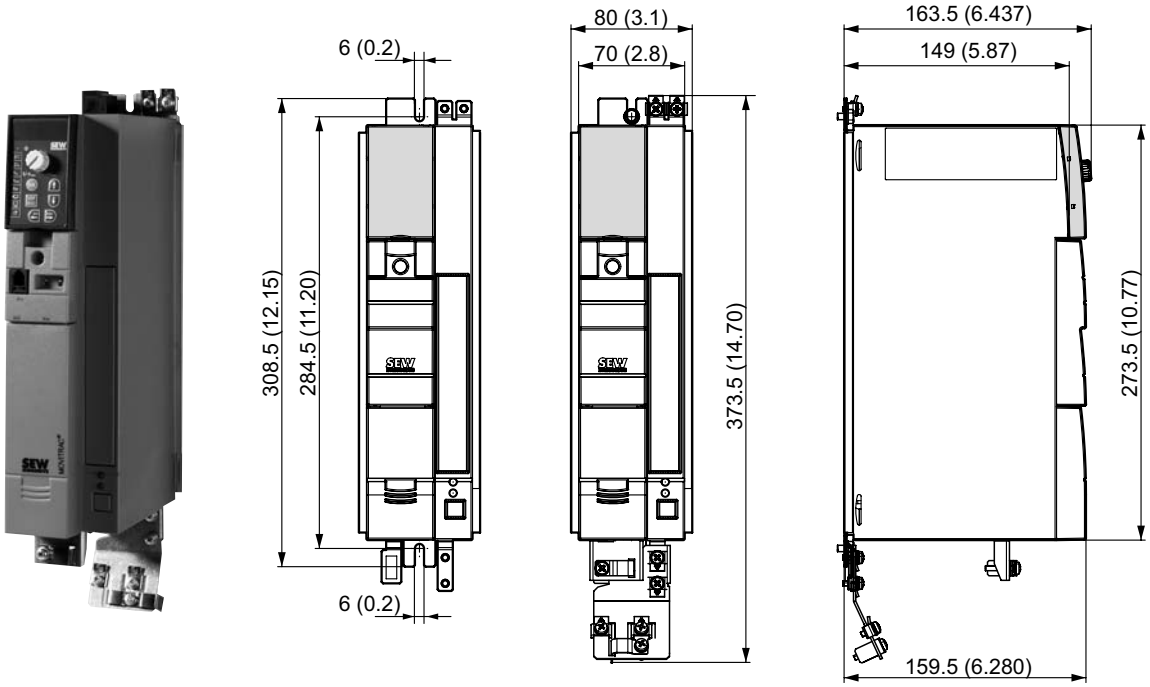
MOVITRAC® MC07B (1-phase supply system) Part number		0003-2B1-4-00 828 491 1	0004-2B1-4-00 828 493 8
INPUT			
Rated supply voltage	V_{supply}	1 × AC 200 ... 240 V	
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5 %	
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 4.3 A AC 5.5 A	AC 6.1 A AC 7.5 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	0.25 kW / 0.34 HP 0.37 kW / 0.50 HP	0.37 kW / 0.50 HP 0.55 kW / 0.74 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 1.7 A AC 2.1 A	AC 2.5 A AC 3.1 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	0.7 kVA 0.9 kVA	1.0 kVA 1.3 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	27 Ω	
GENERAL INFORMATION			
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	30 W 35 W	35 W 45 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 0.5 Nm / 4 lb in	
Dimensions	W × H × D	54.5 × 185 × 163.5 mm / 2.15 × 7.28 × 6.437 in	
Mass	m	1.3 kg / 2.9 lb	

8.4.11 AC 230 V / 1-phase / size 0S / 0.55 ... 0.75 kW (0.74… 1.0 HP



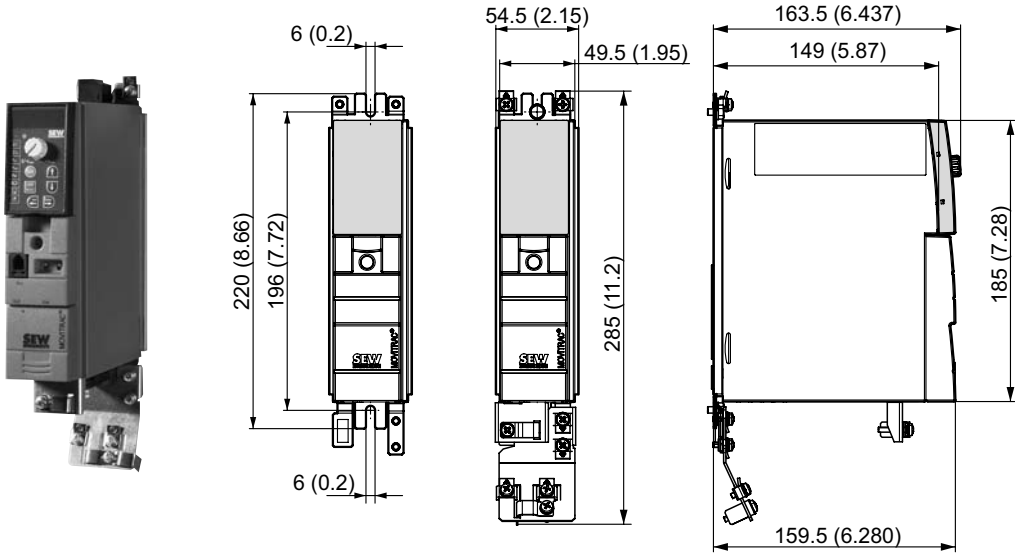
MOVITRAC® MC07B (1-phase supply system) Part number		0005-2B1-4-00 828 494 6	0008-2B1-4-00 828 495 4
INPUT			
Rated supply voltage	V_{supply}	1 × AC 200 ... 240 V	
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5 %	
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 8.5 A AC 10.2 A	AC 9.9 A AC 11.8 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	0.55 kW / 0.74 HP 0.75 kW / 1.0 HP	0.75 kW / 1.0 HP 1.1 kW / 1.5 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 3.3 A AC 4.1 A	AC 4.2 A AC 5.3 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	1.4 kVA 1.7 kVA	1.7 kVA 2.1 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	27 Ω	
GENERAL INFORMATION			
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	45 W 50 W	50 W 65 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 0.5 Nm / 4 lb in	
Dimensions	W × H × D	80 × 185 × 163.5 mm / 3.1 × 7.28× 6.437 in	
Mass	m	1.5 kg / 3.3 lb	

8.4.12 AC 230 V / 1-phase / size 0L / 1.1 ... 2.2 kW / 1.5 ... 3.0 HP



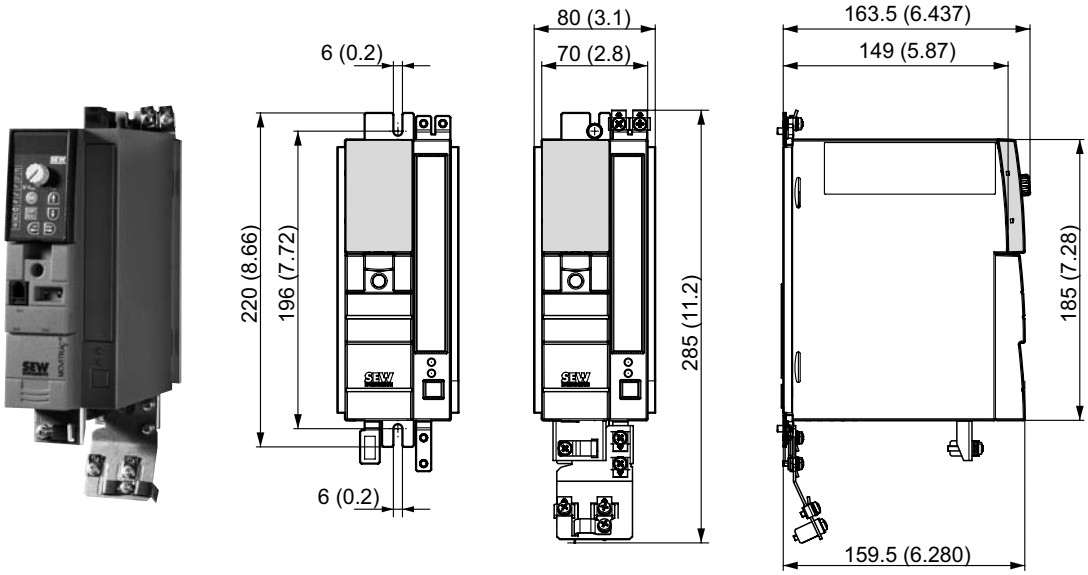
MOVITRAC® MC07B (1-phase supply system)		0011-2B1-4-00	0015-2B1-4-00	0022-2B1-4-00
Part number		**828 496 2**	**828 497 0**	**828 498 9**
INPUT				
Rated supply voltage	V_{supply}	1 × AC 200 ... 240 V		
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5 %		
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 13.4 A AC 16.8 A	AC 16.7 A AC 20.7 A	AC 19.7 A AC 24.3 A
OUTPUT				
Output voltage	U_A	3 × 0 ... V_{supply}		
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	1.1 kW / 1.5 HP 1.5 kW / 2.0 HP	1.5 kW / 2.0 HP 2.2 kW / 3.0 HP	2.2 kW / 3.0 HP 3.0 kW / 4.0 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 5.7 A AC 7.1 A	AC 7.3 A AC 9.1 A	AC 8.6 A AC 10.8 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	2.3 kVA 2.9 kVA	3.0 kVA 3.7 kVA	3.5 kVA 4.3 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	27 Ω		
GENERAL INFORMATION				
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	70 W 90 W	90 W 110 W	105 W 132 W
Current limitation		150 % I_N for at least 60 seconds		
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 0.5 Nm / 4 lb in		
Dimensions	W × H × D	80 × 273.5 × 163.5 mm / 3.1 × 10.77 × 6.437 in		
Mass	m	2.2 kg / 4.9 lb		

8.4.13 AC 230 V / 3-phase / size 0XS / 0.25 ... 0.37 kW / 0.34 ... 0.50 HP



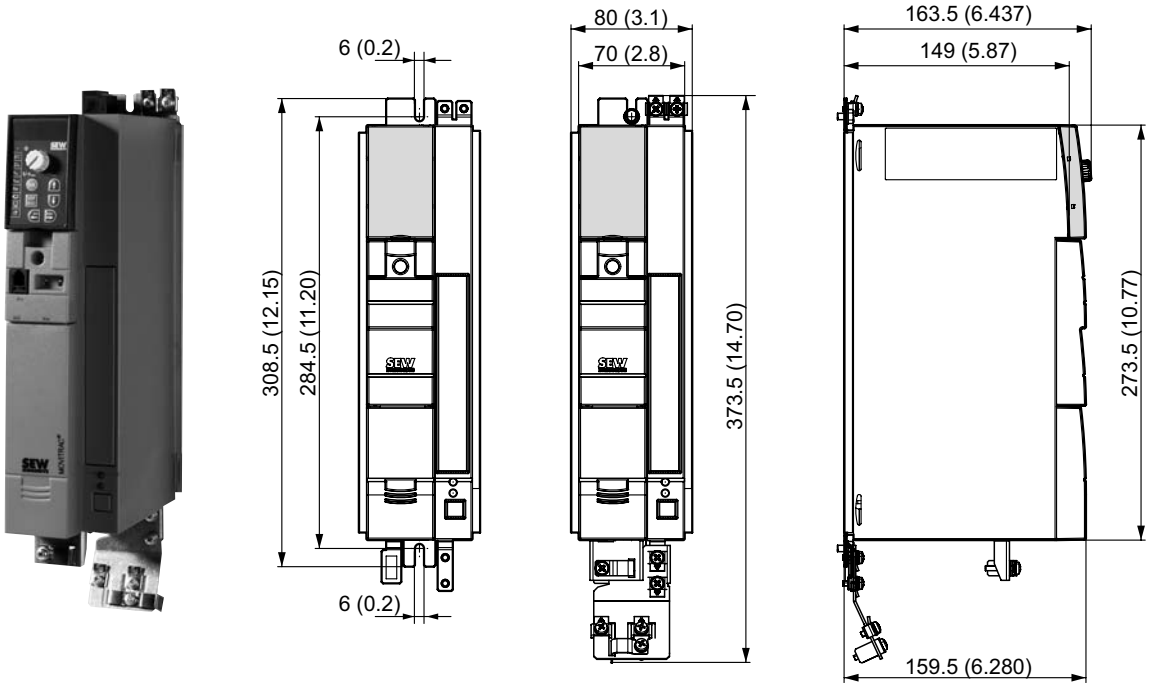
MOVITRAC® MC07B (3-phase supply system) Part number		0003-2A3-4-00 828 499 7	0004-2A3-4-00 828 500 4
INPUT			
Rated supply voltage	V_{supply}	3 × AC 200 ... 240 V	
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5 %	
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 1.6 A AC 1.9 A	AC 2.0 A AC 2.4 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	0.25 kW / 0.34 HP 0.37 kW / 0.50 HP	0.37 kW / 0.50 HP 0.55 kW / 0.74 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 1.7 A AC 2.1 A	AC 2.5 A AC 3.1 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	0.7 kVA 0.9 kVA	1.0 kVA 1.3 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	27 Ω	
GENERAL INFORMATION			
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	35 W 40 W	40 W 50 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 0.5 Nm / 4 lb in	
Dimensions	W × H × D	54.5 × 185 × 163.5 mm / 2.15 × 7.28 × 6.437 in	
Mass	m	1.3 kg / 2.9 lb	

8.4.14 AC 230 V / 3-phase / size 0S / 0.55 ... 0.75 kW / 0.74 ... 1.0 HP



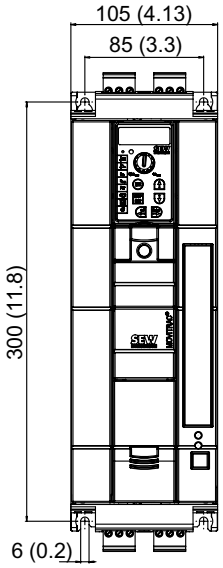
MOVITRAC® MC07B (3-phase supply system) Part number		0005-2A3-4-00 828 501 2	0008-2A3-4-00 828 502 0
INPUT			
Rated supply voltage	V_{supply}	3 × AC 200 ... 240 V	
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5 %	
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 2.8 A AC 3.4 A	AC 3.3 A AC 4.1 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	0.55 kW / 0.74 HP 0.75 kW / 1.0 HP	0.75 kW / 1.0 HP 1.1 kW / 1.5 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 3.3 A AC 4.1 A	AC 4.2 A AC 5.3 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	1.4 kVA 1.7 kVA	1.7 kVA 2.1 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	27 Ω	
GENERAL INFORMATION			
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	50 W 60 W	60 W 75 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 0.5 Nm / 4 lb in	
Dimensions	W × H × D	80 × 185 × 163.5 mm / 3.1 × 7.28 × 6.437 in	
Mass	m	1.5 kg / 3.3 lb	

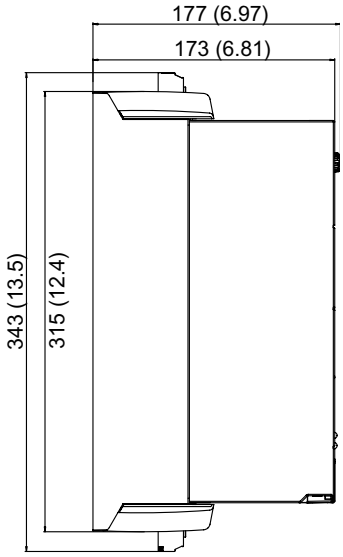
8.4.15 AC 230 V / 3-phase / size 0L / 1.1 ... 2.2 kW / 1.5 ... 3.0 HP



MOVITRAC® MC07B (3-phase supply system) Part number		0011-2A3-4-00 828 503 9	0015-2A3-4-00 828 504 7	0022-2A3-4-00 828 505 5
INPUT				
Rated supply voltage	V_{supply}	3 × AC 200 ... 240 V		
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5 %		
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 5.1 A AC 6.3 A	AC 6.4 A AC 7.9 A	AC 7.6 A AC 9.5 A
OUTPUT				
Output voltage	U_A	3 × 0 ... V_{supply}		
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	1.1 kW / 1.5 HP 1.5 kW / 2.0 HP	1.5 kW / 2.0 HP 2.2 kW / 3.0 HP	2.2 kW / 3.0 HP 3.0 kW / 4.0 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 5.7 A AC 7.1 A	AC 7.3 A AC 9.1 A	AC 8.6 A AC 10.8 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	2.3 kVA 2.9 kVA	3.0 kVA 3.7 kVA	3.5 kVA 4.3 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	27 Ω		
GENERAL INFORMATION				
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	75 W 90 W	90 W 110 W	105 W 140 W
Current limitation		150 % I_N for at least 60 seconds		
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 0.5 Nm / 4 lb in		
Dimensions	W × H × D	80 × 273.5 × 163.5 mm / 3.1 × 10.77 × 6.437 in		
Mass	m	2.2 kg / 4.9 lb		

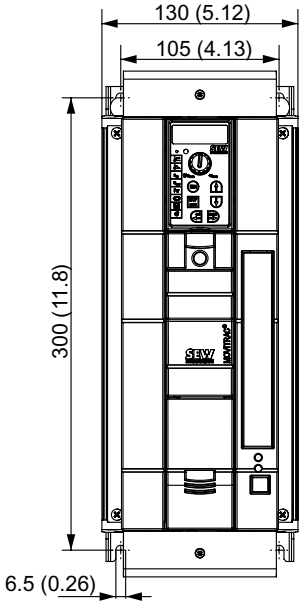
8.4.16 AC 230 V / 3-phase / size 1 / 3.7 kW / 5.0 HP

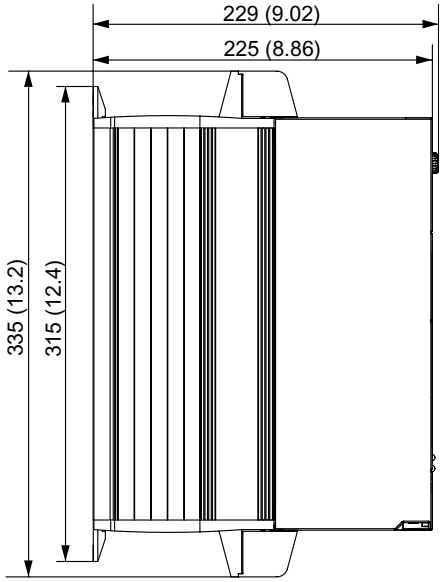




MOVITRAC® MC07B (3-phase supply system) **Part number**		**0037-2A3-4-00** **828 506 3**
INPUT		
Rated supply voltage	V_{supply}	3 × AC 200 ... 240 V
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5 %
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 12.9 A AC 16.1 A
OUTPUT		
Output voltage	U_A	3 × 0 ... V_{supply}
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	3.7 kW / 5.0 HP 5.5 kW / 7.4 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 14.5 A AC 18.1 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	5.8 kVA 7.3 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	27 Ω
GENERAL INFORMATION		
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	210 W 270 W
Current limitation		150 % I_N for at least 60 seconds
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 0.5 Nm / 4 lb in
Dimensions	W × H × D	105 × 315 × 173 mm / 4.13 × 12.4 × 6.81 in
Mass	m	3.5 kg / 7.7 lb

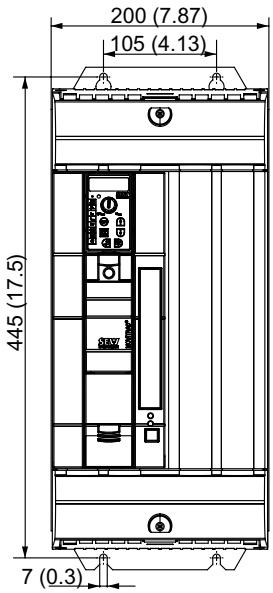
8.4.17 AC 230 V / 3-phase / size 2 / 5.5 ... 7.5 kW / 7.4 ... 10 HP

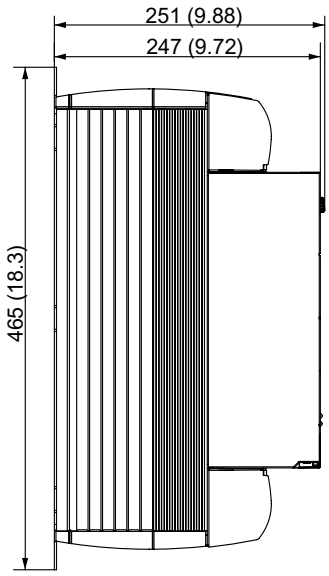




MOVITRAC® MC07B (3-phase supply system) **Part number**		**0055-2A3-4-00** **828 507 1**	**0075-2A3-4-00** **828 509 8**
INPUT			
Rated supply voltage	V_{supply}	3 × AC 200 ... 240 V	
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5%	
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 19.5 A AC 24.4 A	AC 27.4 A AC 34.3 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	5.5 kW / 7.4 HP AC 7.5 kW / 10 HP	7.5 kW / 10 HP 11 kW / 15 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 22 A AC 27.5 A	AC 29 A AC 36.3 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	8.8 kVA 11.0 kVA	11.6 kVA 14.5 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	12 Ω	
GENERAL INFORMATION			
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	300 W 375 W	380 W 475 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	4 mm^2 / AWG12 / 1.5 Nm / 13 lb in	
Dimensions	W × H × D	130 × 335 × 229 mm / 5.12 × 13.2 × 9.02 in	
Mass	m	6.6 kg / 15 lb	

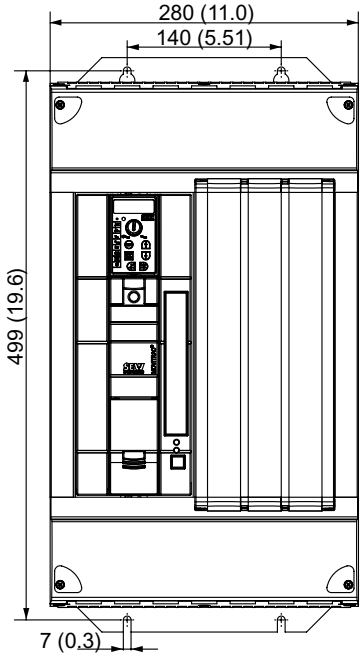
8.4.18 AC 230 V / 3-phase / size 3 / 11 ... 15 kW / 15 ... 20 HP

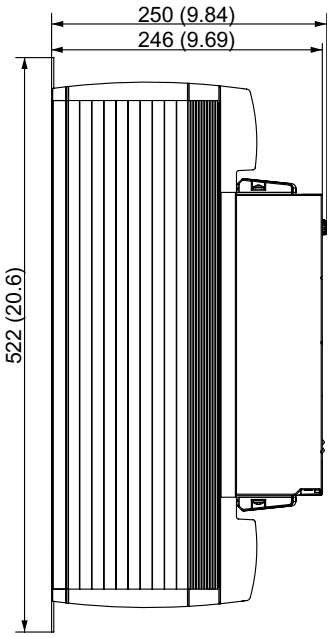




MOVITRAC® MC07B (3-phase supply system) Part number		0110-203-4-00 828 510 1	0150-203-4-00 828 512 8
INPUT			
Rated supply voltage	V_{supply}	3 × AC 200 ... 240 V	
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5%	
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 40.0 A AC 50.0 A	AC 48.6 A AC 60.8 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	11 kW / 15 HP 15 kW / 20 HP	15 kW / 20 HP 22 kW / 30 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 42 A AC 52.5 A	AC 54 A AC 67.5 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	16.8 kVA 21.0 kVA	21.6 kVA 26.9 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	7.5 Ω	5.6 Ω
GENERAL INFORMATION			
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	580 W 720 W	720 W 900 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	6 mm^2 / AWG10	10 mm^2 / AWG8
		3.5 Nm / 31 lb in	
Dimensions	W × H × D	200 × 465 × 251 mm / 7.87 × 18.3 × 9.88 in	
Mass	m	15 kg / 33 lb	

8.4.19 AC 230 V / 3-phase / size 4 / 22 ... 30 kW / 30 ... 40 HP





MOVITRAC® MC07B (3-phase supply system) Part number		0220-203-4-00 828 513 6	0300-203-4-00 828 514 4
INPUT			
Rated supply voltage	V_{supply}	3 × AC 200 ... 240 V	
Rated mains frequency	f_{supply}	50 / 60 Hz ± 5%	
Rated mains current, 100 % operation Rated mains current, 125 % operation	I_{supply} $I_{supply\ 125}$	AC 72 A AC 90 A	AC 86 A AC 107 A
OUTPUT			
Output voltage	U_A	3 × 0 ... V_{supply}	
Recommended motor power 100 % operation Recommended motor power 125 % operation	P_{Mot} $P_{Mot\ 125}$	22 kW / 30 HP 30 kW / 40 HP	30 kW / 40 HP 37 kW / 50 HP
Rated output current 100 % operation Rated output current 125 % operation	I_N $I_{N\ 125}$	AC 80 A AC 100 A	AC 95 A AC 118.8 A
Apparent output power 100 % operation Apparent output power 125 % operation	S_N $S_{N\ 125}$	31.9 kVA 39.9 kVA	37.9 kVA 47.4 kVA
Minimum permitted braking resistance value (4 quadrant operation)	R_{BW_min}	3 Ω	
GENERAL INFORMATION			
Power loss 100 % operation Power loss 125 % operation	P_V $P_{V\ 125}$	1100 W 1400 W	1300 W 1700 W
Current limitation		150 % I_N for at least 60 seconds	
Terminal cross section / tightening torque	Terminals	25 mm^2 / AWG4	35 mm^2 / AWG2
		14 Nm / 120 lb in	
Dimensions	W × H × D	280 × 522 × 250 mm / 11.0 × 20.6 × 9.84 in	
Mass	m	27 kg / 60 lb	

8.5 Front option FBG11B keypad

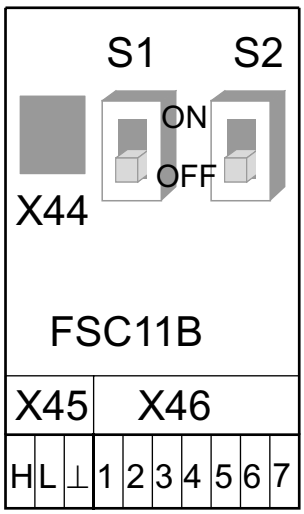
The FBG11B front option can be used for simple diagnostics and startup.

Part number	1820 635 2
Functions	• Display process values and status • Error memory and error reset queries • Displaying and setting parameters • Back up and transfer of parameter sets • Easy-to-use startup menu for SEW and non-SEW motors • Manual control for MOVITRAC® B
Features	• 5-digit, 7-segment display / 6 buttons / 8 icons / setpoint control module • Selection of short or long menu • Can be plugged onto the inverter (during operation) • Degree of protection IP20 (EN 60529)

8.6 FSC11B communication module

The FSC11B communication module enables communication with other units. These may include: PC, operator terminals, MOVITRAC® or MOVIDRIVE®.

Part number	1820 716 2
Functions	• Communication with PLC / MOVITRAC®B / MOVIDRIVE® / PC • Operation/parameter setting/service (PC) • The options FSC11B and FIO11B are installed at the same fastening place and therefore cannot be used simultaneously.
Features	• RS-485 (one interface): Plug-in terminals and service interface (RJ10 socket) • CAN-based system bus (SBus) (plug-in terminals) • Supported protocols: MOVILINK® / SBus / RS-485 / CANopen



Function	Terminal	Designation	Data
System bus (SBus)	X46:1 X46:2 X46:3 X46:4 X46:5 X46:6 X46:7	SC11: SBus High SC12: SBus Low GND: Reference potential SC21: SBus high SC22: SBus low GND: Reference potential 24VIO: Auxiliary voltage / external voltage supply	CAN bus according to CAN specification 2.0, parts A and B, transmission technology according to ISO 11898, max. 64 stations, terminating resistor (120 Ω) can be activated using DIP switches Terminal cross-section: 1.5 mm^2 (AWG15) without conductor end sleeves 1.0 mm^2 (AWG17) with conductor end sleeves
RS-485 interface	X45:H X45:L X45:⊥ X44 RJ10	ST11: RS-485+ ST12: RS-485– GND: Reference potential Service interface	EIA standard, 9.6 kbaud, max. 32 stations Maximum cable length 200 m (656 ft) Dynamic terminating resistor with fixed installation Terminal cross-section: – 1.5 mm^2 (AWG15) without conductor end sleeves – 1.0 mm^2 (AWG17) with conductor end sleeves Connection: Only for service purposes, exclusively for point-to-point connection Maximum cable length 3 m (10 ft)

8.7 FIO11B analog module

Part number 1820 637 9

8.7.1 Description

The FIO11B analog module adds the following interfaces to the basic version:

- Setpoint input
- Analog output
- RS-485 interface
- The options FIO11B and FSC11B are mounted on the same fastening place and therefore cannot be used simultaneously.

8.7.2 Electronics data FIO11B analog module

Function	Terminal	Designation	Data
Setpoint input[1)]	X40:1 X40:2	AI2: Voltage input GND: Reference potential	–10 ... +10 V R_i > 40 kΩ Resolution 10 bit Sampling time 5 ms
Analog output/ alternative as current output or voltage output	X40:3 X40:4 X40:5	GND: Reference potential AOV1: Voltage output AOC1: Current output	 0 ... +10 V / I_{max} = 2 mA 0 (4) ... 20 mA Resolution 10 bit Sampling time 5 ms Short-circuit proof, protected against external voltage up to 30 V Load impedance $R_L \leq 750\ \Omega$
RS-485 interface	X45:H X45:L X45:⊥ X44 RJ10	ST11: RS-485+ ST12: RS-485– GND: Reference potential Service interface	EIA standard, 9.6 kbaud, max. 32 stations Maximum cable length 200 m (656 ft) Dynamic terminating resistor with fixed installation Terminal cross-section: – 1.5 mm² (AWG15) without conductor end sleeves – 1.0 mm² (AWG17) with conductor end sleeves Connection: Only for service purposes, exclusively for point-to-point connection Maximum cable length 5 m (20 ft)

1) If the setpoint input is not used, it should be set to GND. Otherwise a measured input voltage of –1 V ... +1 V is set.

9 Address List

Germany			
Headquarters **Production** **Sales**	**Bruchsal**	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal P.O. Box Postfach 3023 • D-76642 Bruchsal	Tel. +49 7251 75-0 Fax +49 7251 75-1970 http://www.sew-eurodrive.de sew@sew-eurodrive.de
Service Competence Center	**Central**	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 1 D-76676 Graben-Neudorf	Tel. +49 7251 75-1710 Fax +49 7251 75-1711 sc-mitte@sew-eurodrive.de
	North	SEW-EURODRIVE GmbH & Co KG Alte Ricklinger Straße 40-42 D-30823 Garbsen (near Hannover)	Tel. +49 5137 8798-30 Fax +49 5137 8798-55 sc-nord@sew-eurodrive.de
	East	SEW-EURODRIVE GmbH & Co KG Dänkritzer Weg 1 D-08393 Meerane (near Zwickau)	Tel. +49 3764 7606-0 Fax +49 3764 7606-30 sc-ost@sew-eurodrive.de
	South	SEW-EURODRIVE GmbH & Co KG Domagkstraße 5 D-85551 Kirchheim (near München)	Tel. +49 89 909552-10 Fax +49 89 909552-50 sc-sued@sew-eurodrive.de
	West	SEW-EURODRIVE GmbH & Co KG Siemensstraße 1 D-40764 Langenfeld (near Düsseldorf)	Tel. +49 2173 8507-30 Fax +49 2173 8507-55 sc-west@sew-eurodrive.de
	Electronics	SEW-EURODRIVE GmbH & Co KG Ernst-Blickle-Straße 42 D-76646 Bruchsal	Tel. +49 7251 75-1780 Fax +49 7251 75-1769 sc-elektronik@sew-eurodrive.de
	Drive Service Hotline / 24 Hour Service		+49 180 5 SEWHELP +49 180 5 7394357
	Additional addresses for service in Germany provided on request!		

France			
Production **Sales** **Service**	**Haguenau**	SEW-USOCOME 48-54, route de Soufflenheim B. P. 20185 F-67506 Haguenau Cedex	Tel. +33 3 88 73 67 00 Fax +33 3 88 73 66 00 http://www.usocome.com sew@usocome.com
Production	**Forbach**	SEW-EUROCOME Zone Industrielle Technopôle Forbach Sud B. P. 30269 F-57604 Forbach Cedex	Tel. +33 3 87 29 38 00
Assembly **Sales** **Service**	**Bordeaux**	SEW-USOCOME Parc d'activités de Magellan 62, avenue de Magellan - B. P. 182 F-33607 Pessac Cedex	Tel. +33 5 57 26 39 00 Fax +33 5 57 26 39 09
	Lyon	SEW-USOCOME Parc d'Affaires Roosevelt Rue Jacques Tati F-69120 Vaulx en Velin	Tel. +33 4 72 15 37 00 Fax +33 4 72 15 37 15
	Paris	SEW-USOCOME Zone industrielle 2, rue Denis Papin F-77390 Verneuil l'Etang	Tel. +33 1 64 42 40 80 Fax +33 1 64 42 40 88
	Additional addresses for service in France provided on request!		

Algeria			
Sales	**Alger**	Réducom 16, rue des Frères Zaghnoun Bellevue El-Harrach 16200 Alger	Tel. +213 21 8222-84 Fax +213 21 8222-84 reducom_sew@yahoo.fr

Argentina			
Assembly **Sales** **Service**	**Buenos Aires**	SEW EURODRIVE ARGENTINA S.A. Centro Industrial Garin, Lote 35 Ruta Panamericana Km 37,5 1619 Garin	Tel. +54 3327 4572-84 Fax +54 3327 4572-21 sewar@sew-eurodrive.com.ar http://www.sew-eurodrive.com.ar

Australia			
Assembly **Sales** **Service**	**Melbourne**	SEW-EURODRIVE PTY. LTD. 27 Beverage Drive Tullamarine, Victoria 3043	Tel. +61 3 9933-1000 Fax +61 3 9933-1003 http://www.sew-eurodrive.com.au enquires@sew-eurodrive.com.au
	Sydney	SEW-EURODRIVE PTY. LTD. 9, Sleigh Place, Wetherill Park New South Wales, 2164	Tel. +61 2 9725-9900 Fax +61 2 9725-9905 enquires@sew-eurodrive.com.au

Austria			
Assembly **Sales** **Service**	**Wien**	SEW-EURODRIVE Ges.m.b.H. Richard-Strauss-Strasse 24 A-1230 Wien	Tel. +43 1 617 55 00-0 Fax +43 1 617 55 00-30 http://sew-eurodrive.at sew@sew-eurodrive.at

Belarus			
Sales	**Minsk**	SEW-EURODRIVE BY RybalkoStr. 26 BY-220033 Minsk	Tel.+375 (17) 298 38 50 Fax +375 (17) 29838 50 sales@sew.by

Belgium			
Assembly **Sales** **Service**	**Brüssel**	SEW Caron-Vector S.A. Avenue Eiffel 5 B-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.sew-eurodrive.be info@caron-vector.be
Service Competence Center	**Industrial Gears**	SEW Caron-Vector S.A. Rue de Parc Industriel, 31 BE-6900 Marche-en-Famenne	Tel. +32 84 219-878 Fax +32 84 219-879 http://www.sew-eurodrive.be service-wallonie@sew-eurodrive.be

Brazil			
Production **Sales** **Service**	**Sao Paulo**	SEW-EURODRIVE Brasil Ltda. Avenida Amâncio Gaiolli, 152 - Rodovia Presidente Dutra Km 208 Guarulhos - 07251-250 - SP SAT - SEW ATENDE - 0800 7700496	Tel. +55 11 6489-9133 Fax +55 11 6480-3328 http://www.sew-eurodrive.com.br sew@sew.com.br
	Additional addresses for service in Brazil provided on request!		

Bulgaria			
Sales	**Sofia**	BEVER-DRIVE GmbH Bogdanovetz Str.1 BG-1606 Sofia	Tel. +359 2 9151160 Fax +359 2 9151166 bever@fastbg.net

Cameroon			
Sales	**Douala**	Electro-Services Rue Drouot Akwa B.P. 2024 Douala	Tel. +237 33 431137 Fax +237 33 431137

Canada			
Assembly **Sales** **Service**	**Toronto**	SEW-EURODRIVE CO. OF CANADA LTD. 210 Walker Drive Bramalea, Ontario L6T3W1	Tel. +1 905 791-1553 Fax +1 905 791-2999 http://www.sew-eurodrive.ca marketing@sew-eurodrive.ca
	Vancouver	SEW-EURODRIVE CO. OF CANADA LTD. 7188 Honeyman Street Delta. B.C. V4G 1 E2	Tel. +1 604 946-5535 Fax +1 604 946-2513 marketing@sew-eurodrive.ca
	Montreal	SEW-EURODRIVE CO. OF CANADA LTD. 2555 Rue Leger LaSalle, Quebec H8N 2V9	Tel. +1 514 367-1124 Fax +1 514 367-3677 marketing@sew-eurodrive.ca
	Additional addresses for service in Canada provided on request!		

Chile			
Assembly **Sales** **Service**	**Santiago de Chile**	SEW-EURODRIVE CHILE LTDA. Las Encinas 1295 Parque Industrial Valle Grande LAMPA RCH-Santiago de Chile P.O. Box Casilla 23 Correo Quilicura - Santiago - Chile	Tel. +56 2 75770-00 Fax +56 2 75770-01 http://www.sew-eurodrive.cl ventas@sew-eurodrive.cl

China			
Production **Assembly** **Sales** **Service**	**Tianjin**	SEW-EURODRIVE (Tianjin) Co., Ltd. No. 46, 7th Avenue, TEDA Tianjin 300457	Tel. +86 22 25322612 Fax +86 22 25322611 info@sew-eurodrive.cn http://www.sew-eurodrive.cn
Assembly **Sales** **Service**	**Suzhou**	SEW-EURODRIVE (Suzhou) Co., Ltd. 333, Suhong Middle Road Suzhou Industrial Park Jiangsu Province, 215021	Tel. +86 512 62581781 Fax +86 512 62581783 suzhou@sew-eurodrive.cn
	Guangzhou	SEW-EURODRIVE (Guangzhou) Co., Ltd. No. 9, JunDa Road East Section of GETDD Guangzhou 510530	Tel. +86 20 82267890 Fax +86 20 82267891 guangzhou@sew-eurodrive.cn
	Shenyang	SEW-EURODRIVE (Shenyang) Co., Ltd. 10A-2, 6th Road Shenyang Economic Technological Development Area Shenyang, 110141	Tel. +86 24 25382538 Fax +86 24 25382580 shenyang@sew-eurodrive.cn
	Wuhan	SEW-EURODRIVE (Wuhan) Co., Ltd. 10A-2, 6th Road No. 59, the 4th Quanli Road, WEDA 430056 Wuhan	Tel. +86 27 84478398 Fax +86 27 84478388
	Additional addresses for service in China provided on request!		

Colombia			
Assembly **Sales** **Service**	**Bogotá**	SEW-EURODRIVE COLOMBIA LTDA. Calle 22 No. 132-60 Bodega 6, Manzana B Santafé de Bogotá	Tel. +57 1 54750-50 Fax +57 1 54750-44 http://www.sew-eurodrive.com.co sewcol@sew-eurodrive.com.co

Croatia			
Sales **Service**	**Zagreb**	KOMPEKS d. o. o. PIT Erdödy 4 II HR 10 000 Zagreb	Tel. +385 1 4613-158 Fax +385 1 4613-158 kompeks@inet.hr

Czech Republic			
Sales	**Praha**	SEW-EURODRIVE CZ S.R.O. Business Centrum Praha Lužná 591 CZ-16000 Praha 6 - Vokovice	Tel. +420 255 709 601 Fax +420 220 121 237 http://www.sew-eurodrive.cz sew@sew-eurodrive.cz

Denmark			
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Egypt			
Sales **Service**	**Cairo**	Copam Egypt for Engineering & Agencies 33 El Hegaz ST, Heliopolis, Cairo	Tel. +20 2 22566-299 + 1 23143088 Fax +20 2 22594-757 http://www.copam-egypt.com/ copam@datum.com.eg

Estonia			
Sales	**Tallin**	ALAS-KUUL AS Reti tee 4 EE-75301 Peetri küla, Rae vald, Harjumaa	Tel. +372 6593230 Fax +372 6593231 veiko.soots@alas-kuul.ee

Finland			
Assembly **Sales** **Service**	**Lahti**	SEW-EURODRIVE OY Vesimäentie 4 FIN-15860 Hollola 2	Tel. +358 201 589-300 Fax +358 3 780-6211 sew@sew.fi http://www.sew-eurodrive.fi
Production **Assembly** **Service**	**Karkkila**	SEW Industrial Gears OY Valurinkatu 6 FIN-03600 Karkkila	Tel. +358 201 589-300 Fax +358 201 589-310 sew@sew.fi http://www.sew-eurodrive.fi

Gabon			
Sales	**Libreville**	Electro-Services B.P. 1889 Libreville	Tel. +241 7340-11 Fax +241 7340-12

Great Britain			
Assembly **Sales** **Service**	**Normanton**	SEW-EURODRIVE Ltd. Beckbridge Industrial Estate P.O. Box No.1 GB-Normanton, West- Yorkshire WF6 1QR	Tel. +44 1924 893-855 Fax +44 1924 893-702 http://www.sew-eurodrive.co.uk info@sew-eurodrive.co.uk

Greece			
Sales **Service**	**Athen**	Christ. Boznos & Son S.A. 12, Mavromichali Street P.O. Box 80136, GR-18545 Piraeus	Tel. +30 2 1042 251-34 Fax +30 2 1042 251-59 http://www.boznos.gr info@boznos.gr

Hong Kong			
Assembly **Sales** **Service**	**Hong Kong**	SEW-EURODRIVE LTD. Unit No. 801-806, 8th Floor Hong Leong Industrial Complex No. 4, Wang Kwong Road Kowloon, Hong Kong	Tel. +852 36902200 Fax +852 36902211 contact@sew-eurodrive.hk

Hungary			
Sales **Service**	**Budapest**	SEW-EURODRIVE Kft. H-1037 Budapest Kunigunda u. 18	Tel. +36 1 437 06-58 Fax +36 1 437 06-50 office@sew-eurodrive.hu

India			
Assembly **Sales** **Service**	**Vadodara**	SEW-EURODRIVE India Private Limited Plot No. 4, GIDC POR Ramangamdi • Vadodara - 391 243 Gujarat	Tel. +91 265 2831086 Fax +91 265 2831087 http://www.seweurodriveindia.com sales@seweurodriveindia.com subodh.ladwa@seweurodriveindia.com

Ireland			
Sales **Service**	**Dublin**	Alperton Engineering Ltd. 48 Moyle Road Dublin Industrial Estate Glasnevin, Dublin 11	Tel. +353 1 830-6277 Fax +353 1 830-6458 info@alperton.ie http://www.alperton.ie

Israel			
Sales	**Tel-Aviv**	Liraz Handasa Ltd. Ahofer Str 34B / 228 58858 Holon	Tel. +972 3 5599511 Fax +972 3 5599512 http://www.liraz-handasa.co.il office@liraz-handasa.co.il

Italy			
Assembly **Sales** **Service**	**Milano**	SEW-EURODRIVE di R. Blickle & Co.s.a.s. Via Bernini,14 I-20020 Solaro (Milano)	Tel. +39 02 96 9801 Fax +39 02 96 799781 http://www.sew-eurodrive.it sewit@sew-eurodrive.it

Ivory Coast			
Sales	**Abidjan**	SICA Ste industrielle et commerciale pour l'Afrique 165, Bld de Marseille B.P. 2323, Abidjan 08	Tel. +225 2579-44 Fax +225 2584-36

Japan			
Assembly **Sales** **Service**	**Iwata**	SEW-EURODRIVE JAPAN CO., LTD 250-1, Shimoman-no, Iwata Shizuoka 438-0818	Tel. +81 538 373811 Fax +81 538 373814 http://www.sew-eurodrive.co.jp sewjapan@sew-eurodrive.co.jp

Korea			
Assembly **Sales** **Service**	**Ansan-City**	SEW-EURODRIVE KOREA CO., LTD. B 601-4, Banweol Industrial Estate 1048-4, Shingil-Dong Ansan 425-120	Tel. +82 31 492-8051 Fax +82 31 492-8056 http://www.sew-korea.co.kr master@sew-korea.co.kr
	Busan	SEW-EURODRIVE KOREA Co., Ltd. No. 1720 - 11, Songjeong - dong Gangseo-ku Busan 618-270	Tel. +82 51 832-0204 Fax +82 51 832-0230 master@sew-korea.co.kr

Latvia			
Sales	**Riga**	SIA Alas-Kuul Katlakalna 11C LV-1073 Riga	Tel. +371 7139253 Fax +371 7139386 http://www.alas-kuul.com info@alas-kuul.com

Lebanon			
Sales	**Beirut**	Gabriel Acar & Fils sarl B. P. 80484 Bourj Hammoud, Beirut	Tel. +961 1 4947-86 +961 1 4982-72 +961 3 2745-39 Fax +961 1 4949-71 gacar@beirut.com

Lithuania			
Sales	**Alytus**	UAB Irseva Naujoji 19 LT-62175 Alytus	Tel. +370 315 79204 Fax +370 315 56175 info@irseva.lt http://www.sew-eurodrive.lt

Luxembourg			
Assembly **Sales** **Service**	**Brüssel**	CARON-VECTOR S.A. Avenue Eiffel 5 B-1300 Wavre	Tel. +32 10 231-311 Fax +32 10 231-336 http://www.sew-eurodrive.lu info@caron-vector.be

Malaysia			
Assembly **Sales** **Service**	**Johore**	SEW-EURODRIVE SDN BHD No. 95, Jalan Seroja 39, Taman Johor Jaya 81000 Johor Bahru, Johor West Malaysia	Tel. +60 7 3549409 Fax +60 7 3541404 sales@sew-eurodrive.com.my

Mexico			
Assembly **Sales** **Service**	**Queretaro**	SEW-EURODRIVE MEXIKO SA DE CV SEM-981118-M93 Tequisquiapan No. 102 Parque Industrial Queretaro C.P. 76220 Queretaro, Mexico	Tel. +52 442 1030-300 Fax +52 442 1030-301 http://www.sew-eurodrive.com.mx scmexico@seweurodrive.com.mx

Morocco			
Sales	**Casablanca**	Afit 5, rue Emir Abdelkader MA 20300 Casablanca	Tel. +212 22618372 Fax +212 22618351 ali.alami@premium.net.ma

Netherlands			
Assembly **Sales** **Service**	**Rotterdam**	VECTOR Aandrijftechniek B.V. Industrieweg 175 NL-3044 AS Rotterdam Postbus 10085 NL-3004 AB Rotterdam	Tel. +31 10 4463-700 Fax +31 10 4155-552 http://www.vector.nu info@vector.nu

New Zealand			
Assembly **Sales** **Service**	**Auckland**	SEW-EURODRIVE NEW ZEALAND LTD. P.O. Box 58-428 82 Greenmount drive East Tamaki Auckland	Tel. +64 9 2745627 Fax +64 9 2740165 http://www.sew-eurodrive.co.nz sales@sew-eurodrive.co.nz
	Christchurch	SEW-EURODRIVE NEW ZEALAND LTD. 10 Settlers Crescent, Ferrymead Christchurch	Tel. +64 3 384-6251 Fax +64 3 384-6455 sales@sew-eurodrive.co.nz

Norway			
Assembly **Sales** **Service**	**Moss**	SEW-EURODRIVE A/S Solgaard skog 71 N-1599 Moss	Tel. +47 69 24 10 20 Fax +47 69 24 10 40 http://www.sew-eurodrive.no sew@sew-eurodrive.no

Peru			
Assembly **Sales** **Service**	**Lima**	SEW DEL PERU MOTORES REDUCTORES S.A.C. Los Calderos, 120-124 Urbanizacion Industrial Vulcano, ATE, Lima	Tel. +51 1 3495280 Fax +51 1 3493002 http://www.sew-eurodrive.com.pe sewperu@sew-eurodrive.com.pe

Poland			
Assembly **Sales** **Service**	**Lodz**	SEW-EURODRIVE Polska Sp.z.o.o. ul. Techniczna 5 PL-92-518 Łódź	Tel. +48 42 67710-90 Fax +48 42 67710-99 http://www.sew-eurodrive.pl sew@sew-eurodrive.pl
		24 Hour Service	Tel. +48 602 739 739 (+48 602 SEW SEW) sewis@sew-eurodrive.pl

Portugal			
Assembly **Sales** **Service**	**Coimbra**	SEW-EURODRIVE, LDA. Apartado 15 P-3050-901 Mealhada	Tel. +351 231 20 9670 Fax +351 231 20 3685 http://www.sew-eurodrive.pt infosew@sew-eurodrive.pt

Romania			
Sales **Service**	**Bucureşti**	Sialco Trading SRL str. Madrid nr.4 011785 Bucuresti	Tel. +40 21 230-1328 Fax +40 21 230-7170 sialco@sialco.ro

Russia			
Assembly **Sales** **Service**	**St. Petersburg**	ZAO SEW-EURODRIVE P.O. Box 36 195220 St. Petersburg Russia	Tel. +7 812 3332522 +7 812 5357142 Fax +7 812 3332523 http://www.sew-eurodrive.ru sew@sew-eurodrive.ru

Senegal			
Sales	**Dakar**	SENEMECA Mécanique Générale Km 8, Route de Rufisque B.P. 3251, Dakar	Tel. +221 338 494 770 Fax +221 338 494 771 senemeca@sentoo.sn

Serbia			
Sales	**Beograd**	DIPAR d.o.o. Ustanicka 128a PC Košum, IV floor SCG-11000 Beograd	Tel. +381 11 347 3244 / +381 11 288 0393 Fax +381 11 347 1337 office@dipar.co.yu

Singapore			
Assembly **Sales** **Service**	**Singapore**	SEW-EURODRIVE PTE. LTD. No 9, Tuas Drive 2 Jurong Industrial Estate Singapore 638644	Tel. +65 68621701 Fax +65 68612827 http://www.sew-eurodrive.com.sg sewsingapore@sew-eurodrive.com

Slovakia			
Sales	**Bratislava**	SEW-Eurodrive SK s.r.o. Rybničná 40 SK-831 06 Bratislava	Tel. +421 2 33595 202 Fax +421 2 33595 200 sew@sew-eurodrive.sk http://www.sew-eurodrive.sk
	Žilina	SEW-Eurodrive SK s.r.o. Industry Park – PChZ ulica M.R.Štefánika 71 SK-010 01 Žilina	Tel. +421 41 700 2513 Fax +421 41 700 2514 sew@sew-eurodrive.sk

Slovakia			
	Banská Bystrica	SEW-Eurodrive SK s.r.o. Rudlovská cesta 85 SK-974 11 Banská Bystrica	Tel. +421 48 414 6564 Fax +421 48 414 6566 sew@sew-eurodrive.sk
	Košice	SEW-Eurodrive SK s.r.o. Slovenská ulica 26 SK-040 01 Košice	Tel. +421 55 671 2245 Fax +421 55 671 2254 sew@sew-eurodrive.sk

Slovenia			
Sales **Service**	**Celje**	Pakman - Pogonska Tehnika d.o.o. UI. XIV. divizije 14 SLO - 3000 Celje	Tel. +386 3 490 83-20 Fax +386 3 490 83-21 pakman@siol.net

South Africa			
Assembly **Sales** **Service**	**Johannesburg**	SEW-EURODRIVE (PROPRIETARY) LIMITED Eurodrive House Cnr. Adcock Ingram and Aerodrome Roads Aeroton Ext. 2 Johannesburg 2013 P.O.Box 90004 Bertsham 2013	Tel. +27 11 248-7000 Fax +27 11 494-3104 http://www.sew.co.za info@sew.co.za
	Cape Town	SEW-EURODRIVE (PROPRIETARY) LIMITED Rainbow Park Cnr. Racecourse & Omuramba Road Montague Gardens Cape Town P.O.Box 36556 Chempet 7442 Cape Town	Tel. +27 21 552-9820 Fax +27 21 552-9830 Telex 576 062 jhainsworth@sew.co.za
	Durban	SEW-EURODRIVE (PROPRIETARY) LIMITED 2 Monaceo Place Pinetown Durban P.O. Box 10433, Ashwood 3605	Tel. +27 31 700-3451 Fax +27 31 700-3847 hengela@sew.co.za

Spain			
Assembly **Sales** **Service**	**Bilbao**	SEW-EURODRIVE ESPAÑA, S.L. Parque Tecnológico, Edificio, 302 E-48170 Zamudio (Vizcaya)	Tel. +34 94 43184-70 Fax +34 94 43184-71 http://www.sew-eurodrive.es sew.spain@sew-eurodrive.es

Sweden			
Assembly **Sales** **Service**	**Jönköping**	SEW-EURODRIVE AB Gnejsvägen 6-8 S-55303 Jönköping Box 3100 S-55003 Jönköping	Tel. +46 36 3442 00 Fax +46 36 3442 80 http://www.sew-eurodrive.se info@sew-eurodrive.se

Switzerland			
Assembly **Sales** **Service**	**Basel**	Alfred Imhof A.G. Jurastrasse 10 CH-4142 Münchenstein bei Basel	Tel. +41 61 417 1717 Fax +41 61 417 1700 http://www.imhof-sew.ch info@imhof-sew.ch

Thailand			
Assembly **Sales** **Service**	**Chonburi**	SEW-EURODRIVE (Thailand) Ltd. 700/456, Moo.7, Donhuaroh Muang Chonburi 20000	Tel. +66 38 454281 Fax +66 38 454288 sewthailand@sew-eurodrive.com

Tunisia			
Sales	**Tunis**	T. M.S. Technic Marketing Service 5, Rue El Houdaibiah 1000 Tunis	Tel. +216 71 4340-64 + 71 4320-29 Fax +216 71 4329-76 tms@tms.com.tn

Turkey			
Assembly **Sales** **Service**	**Istanbul**	SEW-EURODRIVE Hareket Sistemleri San. ve Tic. Ltd. Sti. Bagdat Cad. Koruma Cikmazi No. 3 TR-34846 Maltepe ISTANBUL	Tel. +90 216 4419164, 3838014, 3738015 Fax +90 216 3055867 http://www.sew-eurodrive.com.tr sew@sew-eurodrive.com.tr

Ukraine			
Sales **Service**	**Dnepropetrovsk**	SEW-EURODRIVE Str. Rabochaja 23-B, Office 409 49008 Dnepropetrovsk	Tel. +380 56 370 3211 Fax +380 56 372 2078 http://www.sew-eurodrive.ua sew@sew-eurodrive.ua

USA			
Production **Assembly** **Sales** **Service** **Cooporate Offices**	**Southeast Region**	SEW-EURODRIVE INC. 1295 Old Spartanburg Highway P.O. Box 518 Lyman, S.C. 29365	Tel. +1 864 439-7537 Fax Sales +1 864 439-7830 Fax Manufacturing +1 864 439-9948 Fax Assembly +1 864 439-0566 Fax Confidential/HR +1 864 949-5557 http://www.seweurodrive.com cslyman@seweurodrive.com
Assembly **Sales** **Service**	**Northeast Region**	SEW-EURODRIVE INC. Pureland Ind. Complex 2107 High Hill Road, P.O. Box 481 Bridgeport, New Jersey 08014	Tel. +1 856 467-2277 Fax +1 856 845-3179 csbridgeport@seweurodrive.com
	Midwest Region	SEW-EURODRIVE INC. 2001 West Main Street Troy, Ohio 45373	Tel. +1 937 335-0036 Fax +1 937 440-3799 cstroy@seweurodrive.com
	Southwest Region	SEW-EURODRIVE INC. 3950 Platinum Way Dallas, Texas 75237	Tel. +1 214 330-4824 Fax +1 214 330-4724 csdallas@seweurodrive.com
	Western Region	SEW-EURODRIVE INC. 30599 San Antonio St. Hayward, CA 94544	Tel. +1 510 487-3560 Fax +1 510 487-6433 cshayward@seweurodrive.com
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Venezuela			
Assembly **Sales** **Service**	**Valencia**	SEW-EURODRIVE Venezuela S.A. Av. Norte Sur No. 3, Galpon 84-319 Zona Industrial Municipal Norte Valencia, Estado Carabobo	Tel. +58 241 832-9804 Fax +58 241 838-6275 http://www.sew-eurodrive.com.ve ventas@sew-eurodrive.com.ve sewfinanzas@cantv.net

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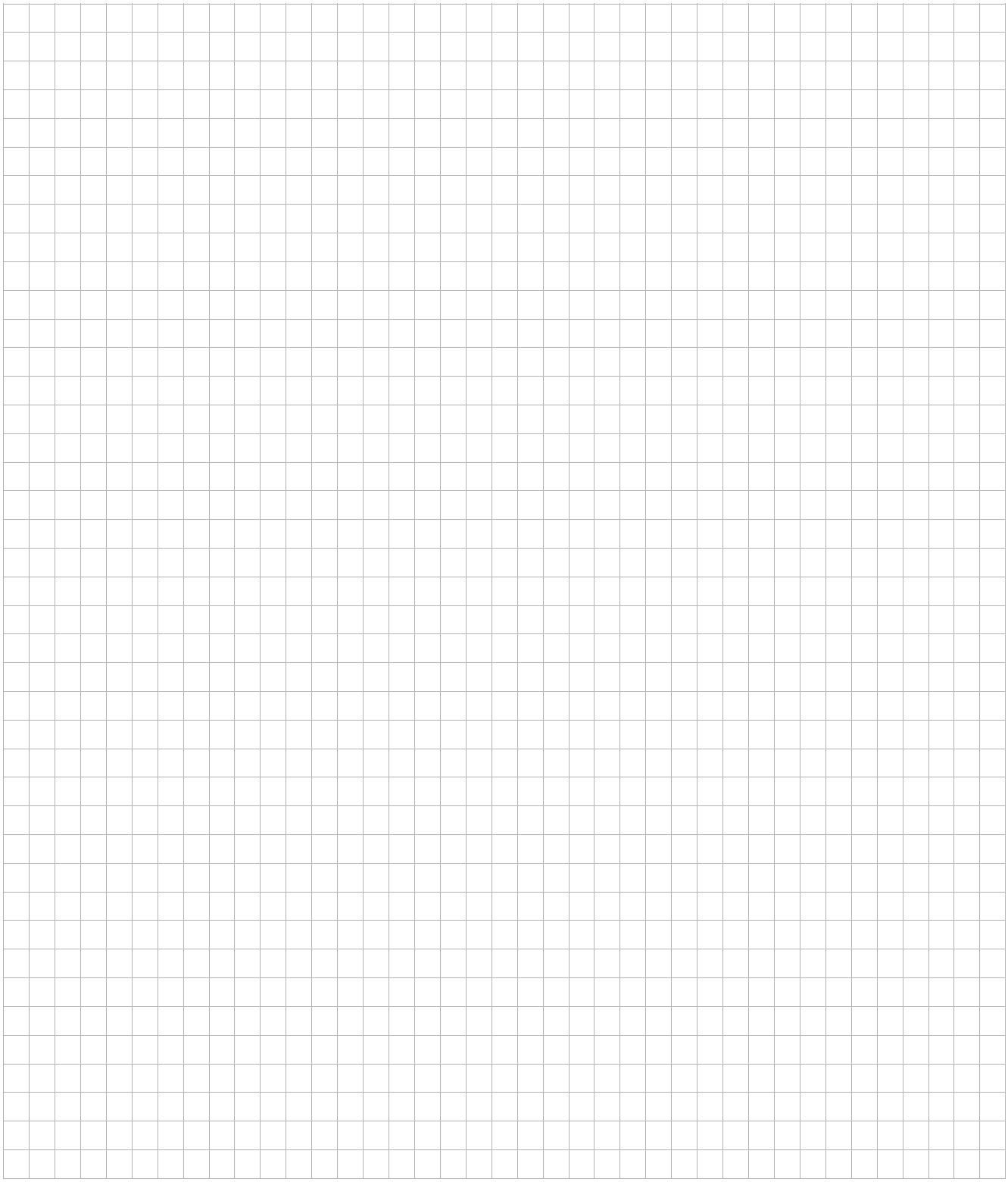

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